

PACIFIC PULP & PAPER INDUSTRY

Volume 4
Number 9

This Copy
35 Cents

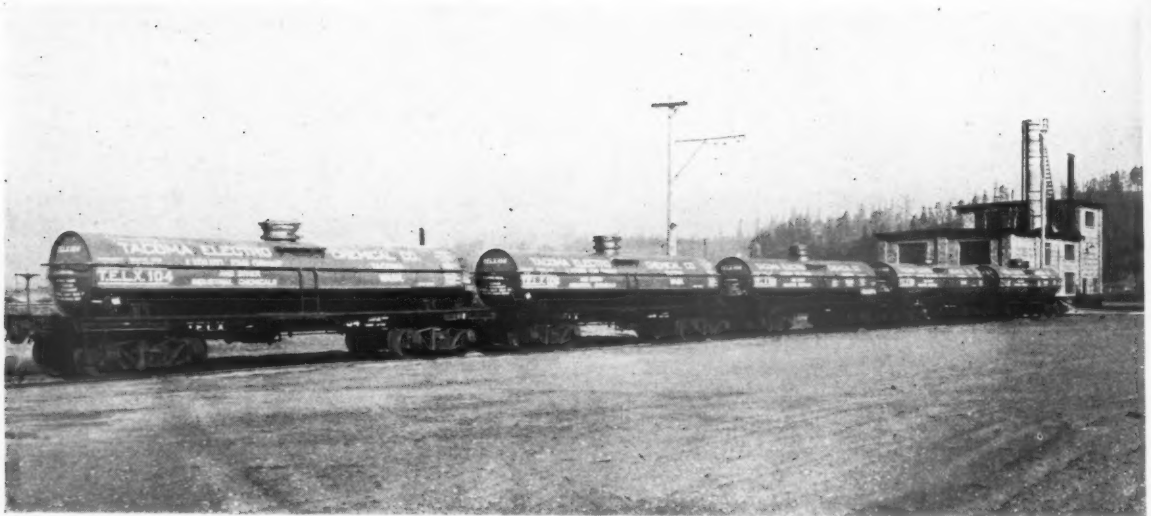


Brubaker Aerial Photo, Portland

The Weyerhaeuser Timber Company Properties at Longview

AUGUST + 1930

Liquid CHLORINE



SINGLE UNIT TANK CARS IN PROCESS OF LOADING



*Ideally Located to
Render Most
Efficient Service*

Chlorine gas obtained from the electrolytic cells at the Tacoma Electrochemical Company is conducted to a drying department where it is prepared for liquefaction. Under pressure and at a low temperature the dry Chlorine gas is liquefied.

Liquid Chlorine is stored in large insulated storage tanks from which it is discharged into tank cars or cylinders. Standard 16 or 30-ton single unit and 15-ton multi-unit cars are used to transport the Liquid Chlorine to the pulp and paper mills.

With adequate facilities for the manufacture of highest quality chemicals and modern equipment for shipment we are prepared to make immediate and satisfactory deliveries.

TACOMA ELECTROCHEMICAL CO.

TACOMA WASHINGTON.

A SUBSIDIARY OF THE PENNSYLVANIA SALT MANUFACTURING CO.

Pacific Pulp & Paper Industry is published once a month—except in March, when publication is semi-monthly—at 71 Columbia St., Seattle, Wash. Subscription: U. S. and Canada, \$4.00; other countries, \$5.00. Entered as second class matter May 20, 1927, at the Postoffice at Seattle, under the Act of March 3, 1879.

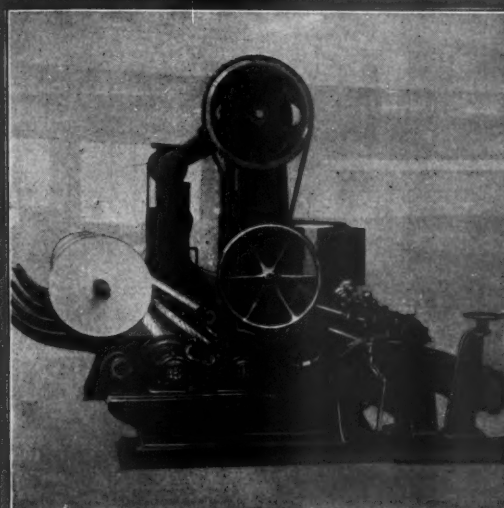
THIS MODERN WINDER

Automatically Discharges

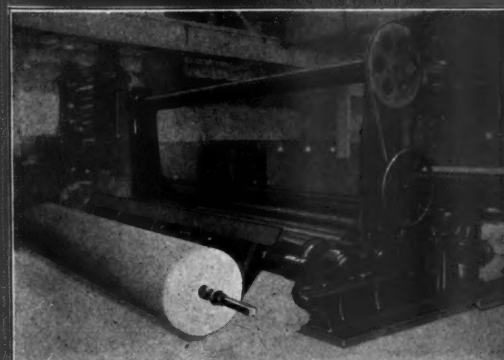
PAPER ROLLS



No. 678—Showing front view of improved Beloit winder.



No. 675—Showing roll of paper resting on cradle, ready to be lowered.



No. 676—Front view, showing roll of paper automatically lowered to floor.

BELOIT has patented and developed a winder that many mill men consider one of the most revolutionary modern improvements in years. It winds from 1 to 4 full-width rolls of news, kraft or book at speeds up to 3000 feet per minute—and the completed rolls are absolutely tightly wound, uniform, accurate and smooth. Human hands do not touch the roll during any period of its progress—and the finished roll, without aid of tackle or lift, and without the slightest possibility of damage, is gently deposited by mechanical arms, on the floor or truck, and, with suitable arrangement, can be automatically delivered into the finishing room, ready to be wrapped for shipment and placed in box cars or boat.

Some of the biggest mills in the country have used this winder over a period of two years, and are enthusiastic over its ability to cut down costs, eliminate lost time and back-breaking effort, and to deliver, at high speeds, a perfectly finished roll.

Completely Automatic

Truly a Mechanical Man

The operation of the Beloit Winder seems almost uncanny to the onlooker. Its various operations, from the time the paper enters the winder until the completed roll is gently dropped to the floor, appear almost human in their precision and smoothness. Press a button and the completed roll is automatically cradled, lowered and deposited quietly on the floor or truck.

10 EXCLUSIVE FEATURES

of the Beloit (patented) Automatic Winder

1. Pressing a button automatically discharges finished roll without aid of human hands.
2. Operates without overhead hoist, crane or tackle.
3. Eliminates the bending or springing of shaft and prevents damaging edges of rolls.
4. Perfect balance of rolls, drums and running parts.
5. Vibrationless in operation.
6. Speeds up to 3000 feet per minute.
7. Anti-friction bearings throughout.
8. Equipped with water-cooled unwinding stands.
9. Turns out smooth, absolutely uniform, tightly-wound rolls.
10. Does away with strained backs and hazards to men.

The many recent installations of this winder indicate that mill men recognize in it a decided advancement in winder improvement. It will pay you to write for valuable data now available.

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.



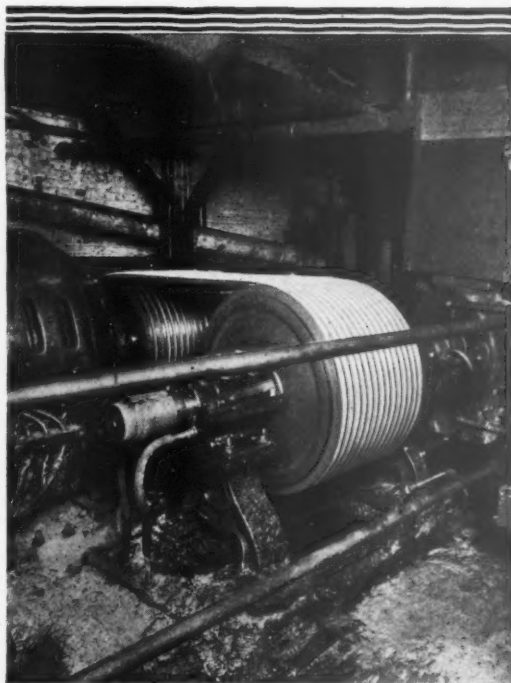
The **BELOIT**

TEXROPE DRIVES

Give *Continuous* Service with *Almost No Maintenance*

EVERYWHERE the trend is toward Texrope Drive. This short center transmission is always silent. It is clean, yet unaffected by dirt or moisture. Starting and acceleration are smooth . . . no jerks . . . no slip . . . no backlash.

Vibration is absorbed by the Texropes. The motor is protected from shocks. Bearing trouble due to the drive disappears. Continuous operation is assured. Costly shut-downs become a thing of the past.



This 150 H. P. Texrope Drive is operating a No. 3 Jordan Engine at the North Star Strawboard Mills, Quincy, Ill. Thousands of Texrope Drives are used in paper mills.

Texrope Drives require no belt dressing . . . no greasing . . . no oiling. There is no wear on the grooved sheaves and almost none on the rubberized-cord belts. Maintenance cost is reduced to a minimum. The belts are unusually long lived. Correct tension is easily maintained. Adjustments are seldom necessary.

Put Texrope Drives on the machines that give you the most trouble in your plant. Let the superior performance of Texrope prove its economy to you.

Over 75,000 Texrope Drives Giving Satisfactory Service

The Texrope Drive, originated by Allis-Chalmers, has proven to be "The Perfect Transmission." Insist on getting Texrope. Today over 75,000 Texrope Drives are in satisfactory service, in practically every industry, transmitting power up to 2,000 H. P. per single drive.

Texrope belts and grooved sheaves up to 100 H. P. and in ratios up to 7:1 are carried in stock at points that permit prompt shipment to all parts of the country. Let us show you how Texrope Drives will end your transmission troubles and help you cut costs. Write for a copy of Bulletin 1228-K.

ALLIS-CHALMERS MANUFACTURING COMPANY, (Texrope Division)
Specialists in Power Machinery Since 1846 Milwaukee, Wisconsin

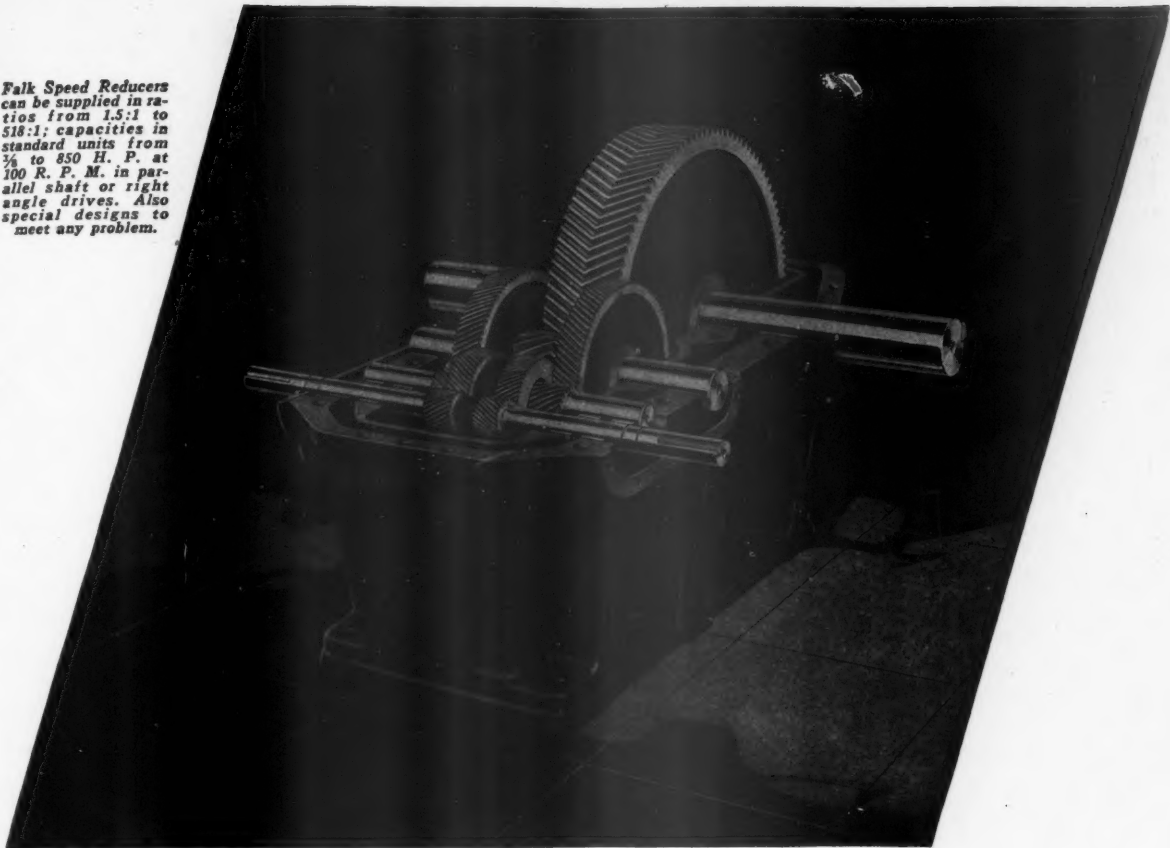
ORIGINATED BY
TEXROPE  **ALLIS-CHALMERS**
DRIVES

THE DRIVES THAT REVOLUTIONIZED



TRANSMISSION PRACTICE . . .

Falk Speed Reducers can be supplied in ratios from 1.5:1 to 518:1; capacities in standard units from ½ to 850 H. P. at 100 R. P. M. in parallel shaft or right angle drives. Also special designs to meet any problem.



Sturdy—to Handle Industry's Heavy Loads

Falk Speed Reducers in actual service have established the high average of 96½% to 98½% efficiency in power delivery depending on number of reductions — an efficiency that is maintained throughout the life of the reducer . . . This is due to the high standards of Falk manufacturing precision . . . Falk Speed Reducers are simple, compact, oil-tight, dirt-proof, quiet, free from heat or vibration. They permit a higher reduction per gear, and transmit load and transform speed with less friction loss than any other type or kind . . . They are made in standard sizes and ratios in both parallel shaft and right angle types and carried in stock for immediate shipment . . . For speed reducers — as for all heavy equipment — you will find it pays to see Falk first!

THE FALK CORPORATION—Milwaukee

Manufacturers—Herringbone Gears, Speed Reducers, Flexible Couplings, Steel Castings and Oil Engines.

Scientific Speed Reducers

Scientific design allows equal pressure on bearings, prevents uneven wear and misalignment. All wearing parts are interchangeable and renewable . . . Patented splash system of lubrication assures long life . . . Excessive capacity makes it unnecessary to buy over size reducers . . . There are no male or female shafts, bushed gears or overhung studs—all shafts are live shafts.

Carried in Stock on the Coast in a wide range of sizes and ratios by

THE PRESCOTT CO.—Seattle

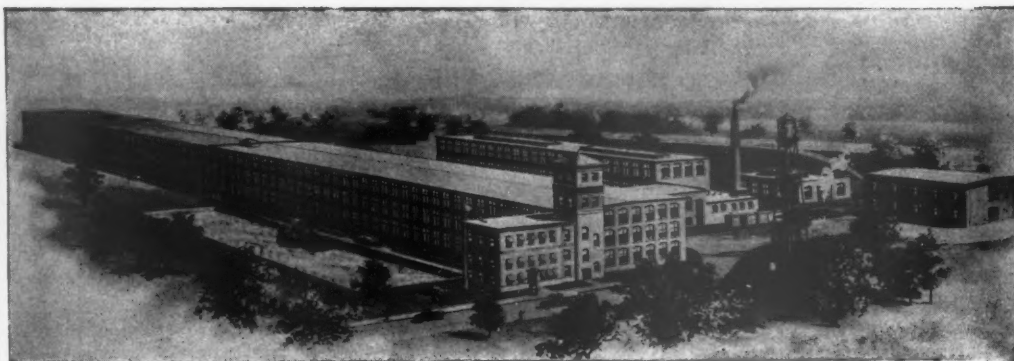
FALK ENGINEERING & SERVICE OFFICES

San Francisco
7 Front Street

Los Angeles
930 Rowan Bldg.

FALK

SPEED REDUCERS



THE HOME OF ALBANY FELTS

MODERN METHODS

An Engineering Staff with a practical and intimate knowledge of pulp and papermaking requirements as they affect the use of felts . . . always at work devising new ways for improving felt performance, perfecting new designs of felt constructions for all kinds of standard papers and specialties.

A modern Research Laboratory constantly considering new problems in felt usage, testing wools and yarns, analyzing, checking . . . not only working with our own engineers but cooperating with scores of paper mills which come to us continually for suggestions for overcoming troublesome conditions.

BROAD EXPERIENCE

FOR YEARS the Albany Felt Company has been helping paper mills throughout the world to cut felt costs and to improve their products . . . offering every aid in meeting new manufacturing conditions as they arose. The result has been an unequalled experience in every kind of paper and board from the most delicate of Japanese rice tissues to the bulkiest of insulation boards.

AT YOUR SERVICE

Any of our representatives will be glad to discuss the best ways for promoting felt efficiencies in your mill. A survey of your requirements may result in suggestions which will be decidedly to your benefit.

ALBANY FELT COMPANY

ALBANY, N. Y.

Growing With The Paper Industry of America

When writing to ALBANY FELT Co. please mention PACIFIC PULP AND PAPER INDUSTRY



NORMA-HOFFMANN Ball and Roller Bearings are available in a complete range of sizes, covering the anti-friction bearing requirements for all speeds and all loads.



INTERCHANGEABLE!

Think what that means!

NORMA-HOFFMANN Ball Bearings have all the load capacity of any ball bearing —PLUS the higher speed-ability and the larger factor of safety which PRECISION standards impart.

NORMA-HOFFMANN Roller Bearings have 50% (or more) greater steady load capacity than even a NORMA-HOFFMANN Ball Bearing of the same dimensions, together with a large overload capacity and an exceptional shock-ability, with a speed-ability equal to that of the PRECISION Ball Bearing.

NORMA-HOFFMANN Roller Bearings interchange in size with NORMA-HOFFMANN Ball Bearings and other standard ball bearings.

Think of the opportunity thus afforded you—by simple replacement without change in dimensions or design — to secure greater speed-ability, load-ability and shock-ability, longer life, better performance.

Our engineers offer their aid. Write for the catalogs.

NORMA-HOFFMANN **PRECISION BEARINGS**

N. B. 1053

PACIFIC COAST REPRESENTATIVES:

SEATTLE: Ahlberg Bearing Co. of California, Inc., 512 East Pike St.
PORTLAND: Ahlberg Bearing Co. of California, Inc., 409 Burnside St.
SAN FRANCISCO: Irvin Silverberg & Co., 541 Van Ness Ave.; Ahlberg Bearing Co. of California, Inc., 549 Golden Gate Ave.

LOS ANGELES: Joseph A. Masterson & Co., 1822 So. Hope St.; Ahlberg Bearing Co. of California, Inc., 1708 So. Grand Ave.
PHOENIX, ARIZ.: Ahlberg Bearing Co. of California, Inc.

NORMA-HOFFMANN BEARINGS CORPN. - STAMFORD CONN. U.S.A.

If you are contemplating further expansion or modernization of your mill here is a fact worth remembering—

**the most prosperous
mills in the country
are operating paper
machines built by**

**Pusey
and
Jones**



THE PUSEY AND JONES CORPORATION, WILMINGTON, DELAWARE, U. S. A., BUILDERS OF PAPER MAKING MACHINERY; FOR NEWS : BOOK : KRAFT : BOARD : : Working For, and in Technical Co-operation With, the Forward-Thinking Minds of the Industry : Since 1848 : The MARK, shown here, will be found on Every Casting, and on every Other Part of major Importance, in every Machine produced by This Company : : It is the Mark of Our Own Technical Standards : : A mark of Superior Quality.

When writing to PUSEY & JONES CORPORATION please mention PACIFIC PULP AND PAPER INDUSTRY

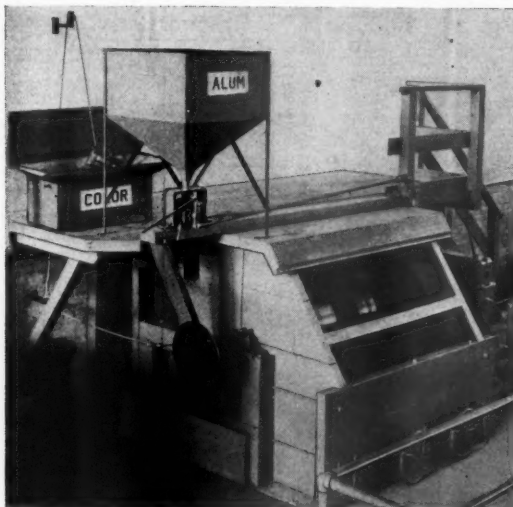
F I D A L G O D R Y I N G S Y S T E M S

PATENTS GRANTED AND PENDING IN ALL COUNTRIES



BEADLE Batch Measuring SYSTEM

*With Meyers Mesco Stock Consistency
Regulator*



A FULLY automatic system for measuring and feeding liquids, powdered solids and pulp to be mixed together in a single batch. Adjustable as to proportions and rate of delivery. Assures accuracy of proportions. Feeds size, colors, clay, alum, etc. One machine can easily handle a daily production of 125 tons. Compact; requires no attention after adjustments have been made; the most economical method of measuring and regulating consistency.

FIDALGO DRYER—for shredded pulp.
DRYAD—Continuous dryer for board.
PEHRSON ROTARY DRYER—for chips
and bark.
FIDALGO SHREDDER—for all kinds of
pulp.

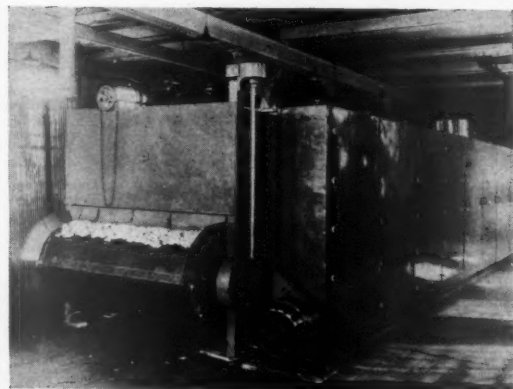
FIDALGO PRODUCTS

MEYERS-MESCO STOCK CONSISTENCY
REGULATOR—for all kinds of stock.
BEADLE METERING DEVICE—for meter-
ing any number of stocks.
NEWNAP FELT CONDITIONER—for
conditioning press felts.



FIDALGO Drying SYSTEM

*Specially Designed for Drying
Bleached or Unbleached Sulphite, Soda,
Sulphate and Ground Wood*



THE Fidalgo method of drying pulp will not in any way affect the quality or test of the pulp; its strength factor is practically the same as wet pulp.

Dryer is insulated and enclosed, assuring clean product.

Can be operated with live or exhaust steam . . . small investment.

We invite you to investigate any of our installations. Write for bulletin and full particulars.

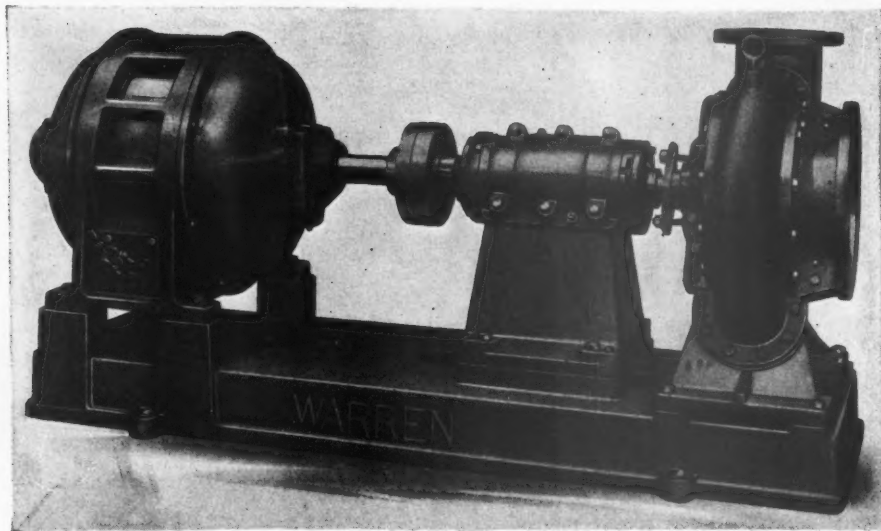
PROMI MICROSCOPE—for fibre study in
laboratory.
WET MACHINES.
BALING PRESSES.
FILTERS AND THICKENERS.
FLAT SCREENS.

FIDALGO DRYING SYSTEMS

122 East 42nd Street

INCORPORATED

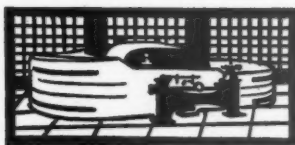
NEW YORK, N. Y.



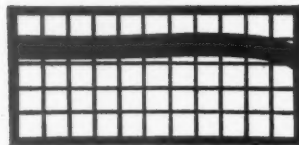
Warren Stuff Pumps



SAVE POWER



**MOVE HEAVY
STOCK QUICKLY**



**MAINTAIN THEIR
EFFICIENCY...**

A paper maker installed a Warren Stuff Pump to handle 6000 g.p.m. of light stock against a head of 37 ft. at 700 r.p.m. A high efficiency guarantee was desired. The mill superintendent recently told us he was doing more with this pump, using a 75 H.P. motor than with another make of pump designed to do the same work, but requiring 100 H.P. And 25 H.P. saved is worth about \$2500 a year.

In a large eastern mill a Warren Stuff Pump fills a 1400 pound beater with 5% stock in one minute and twenty seconds.

Built to handle 6% clean stock efficiently and without clogging, Warren Stuff Pumps move pulped stock quickly and smoothly, do not require attention and stay on the job 24 hours a day.

Many pumps show a noticeable drop in efficiency shortly after they are put in service, due to wear. Warren Stuff Pumps have easily renewable case liners which preserve a close running clearance between the impellers and sides.

By installing new liners, thus compensating for wear, the original efficiency is restored.

If you want stock handling equipment that will give efficient, dependable operation under the hardest kind of service, install Warren pumps. Bulletins or estimates?

Warren
Steam Pump Company Inc.  **Warren**
Massachusetts

Agencies in all principal cities

HOOKER CHEMICALS

*..of the
Highest
Quality...*



Every product, every process has originated in or passed thru our Research Department. We are justly proud of this painstaking care in development and production. It guarantees you Hooker Chemicals of the Highest Quality.

With plants conveniently located and our policy of carrying ample stocks of materials on hand at all times, we are prepared to make prompt and efficient deliveries to all sections of the country.

HOOKER CHEMICALS

Caustic Soda
Liquid Chlorine
Bleaching Powder
Muriatic Acid
Monochlorobenzene
Paradichlorobenzene
Benzoate of Soda
Benzoic Acid
Benzoyl Chloride
Benzyl Alcohol
Benzyl Chloride
Antimony Trichloride
Ferrie Chloride
Sulphur Monochloride
Sulphur Dichloride
Sulphuryl Chloride
Salt

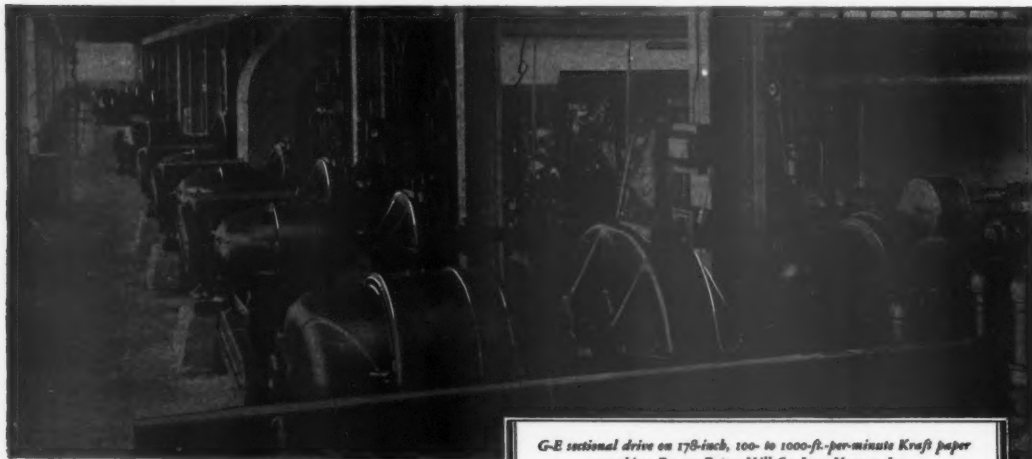
HOOKER ELECTROCHEMICAL CO.

WESTERN

Plant—Tacoma, Washington
Sales Office—Tacoma, Washington

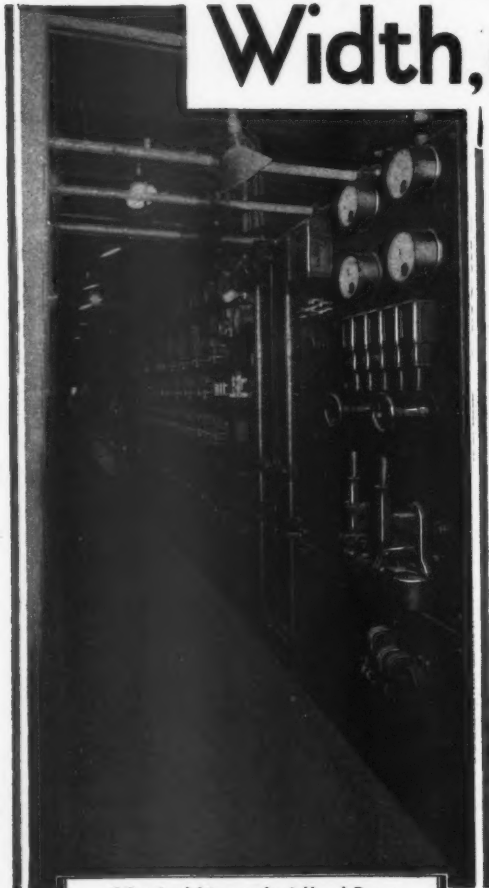
EASTERN

Plant—Niagara Falls, N. Y.
Sales Office—60 East 42nd St., New York City



G-E sectional drive on 178-inch, 100- to 1000-ft.-per-minute Kraft paper machine, Brown Paper Mill Co. Inc., Monroe, La.

G-E Sectional Drive for Speed, Width, and Speed-range



G-E sectional-drive-control switchboard, Brown Paper Mill Co. Inc.

SPEED, speed-range, width of paper, or a combination of all three—regardless of the nature of your problem in paper machine drive, you'll find the correct answer in General Electric equipment.

For example, in the plant of the Brown Paper Mill Co. Inc., Monroe, Louisiana—one of the largest manufacturers of Kraft paper in the South—two major considerations were answered by the installation of a G-E multiple-generator sectional drive: an unusual speed range of 10:1, and an output range from 300-pound Kraft to 24-pound bag.

General Electric has powered every type and size of machine for paper making from the largest—as typified by the 304-inch, 1500-ft.-per-minute paper machine of the Backus-Brooks Company—down to the smallest. If it's a problem of drive, take it up with the nearest G-E office. G-E specialists will gladly cooperate with you in the solution.

GENERAL

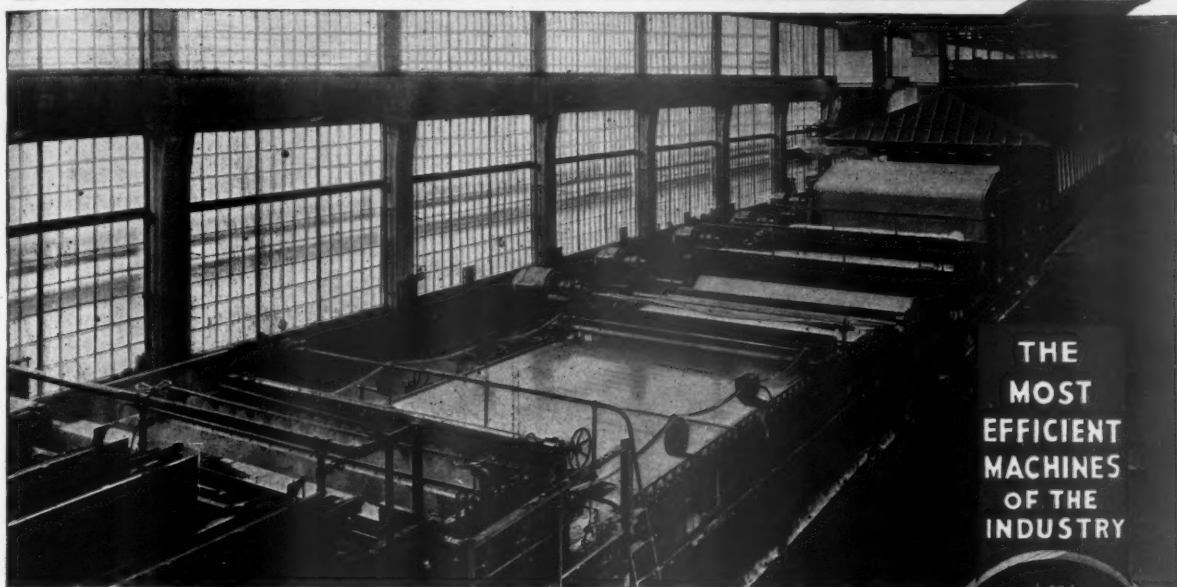


ELECTRIC

237-41

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

PACESETTERS



GRAYS HARBOR... World's Largest Bond Machine

When Hammermill's engineers planned to provide the new Grays Harbor mill with the widest and fastest bond machine ever constructed, they chose Bagley & Sewall to do the building. For Bagley & Sewall, in over a century of intimate contact with the paper making industry, has acquired the organization and the equipment to do this sort of job unusually well.

Today, this giant, 202" across the wire, is turning out a stupendous tonnage of fine bond, setting a production mark inconceivable a few years ago. Despite its immense size and capacity, it is constructed and assembled with a degree of refinement in mechanical detail and operating precision never approached in older and smaller types.

Everywhere, throughout the industry, the pace setters, makers of quality papers of every type, turn to Bagley & Sewall for standard and special equipment, from head box through to rewinder. And, always, Bagley & Sewall equipment justifies their confidence.

The Bagley & Sewall Co.
Watertown, N. Y.

42

1855 • SEVENTY-FIFTH ANNIVERSARY • 1930

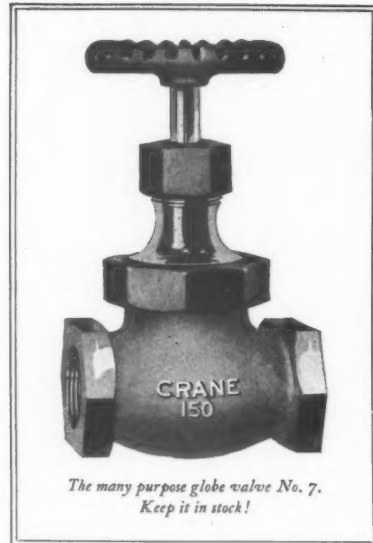
Progress based on efficiency

1

Fifty years ago the paper industry was in its infancy. The great demands that the modern world has made on it were just beginning. Publishing houses were being founded; newspapers were getting into the penny sheet, big circulation class.

During this half-century, the paper industry has multiplied its production 17 times over . . . and this has been achieved with an increase of less than one-tenth in the number of plants. Such facts tell a story of efficient progress based on concentrated development and sound engineering.

Paralleling its history is Crane Co. Founded just 75 years ago, it has grown from a one man shop making two or three different fittings to a world girdling institution, manufacturing more than 30,000 items, dis-



*The many purpose globe valve No. 7.
Keep it in stock!*

tributing them through 194 branches, and sales offices.

In a measure the growth of the paper industry demanded the growth of Crane Co. As paper mills sought materials to control power more efficiently, to lower waste, Crane engineers studied their problems and developed valves and fittings to solve many of them. Confident of future progress as marked as the past, Crane Co., on its 75th anniversary, invites paper men to present their piping problems with the assurance of whole hearted cooperation towards their solution.

Valves



CRANE



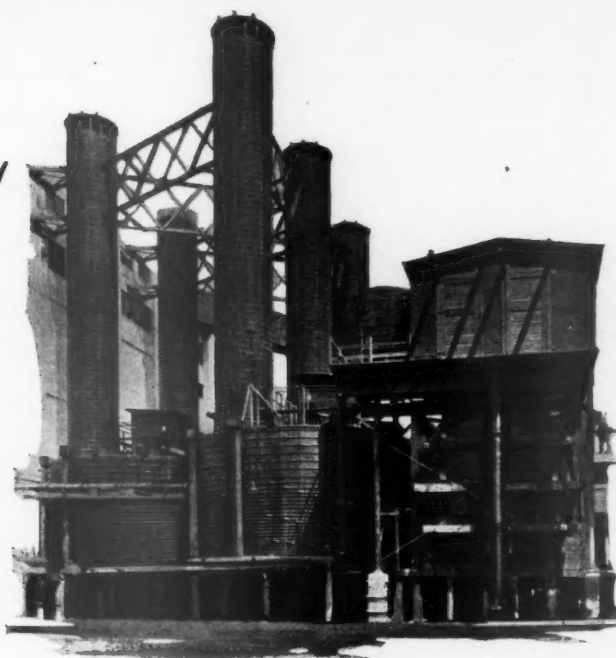
Fittings

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET

Branches and Sales Offices in One Hundred and Ninety-six Cities

When writing to CRANE CO., please mention PACIFIC PULP AND PAPER INDUSTRY.

no more —
BLOW PIT
— troubles
 for **OLYMPIC
 FOREST
 PRODUCTS
 COMPANY**



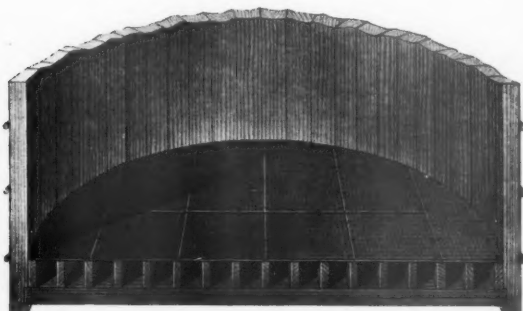
**BECAUSE THEY USE OUR PERFORATED
 ALLEGHENY METAL SHEETS FOR THEIR
 DRAINER BOTTOMS . . .**

These Nickel Chromium Alloy Metal drainer Bottoms resist corrosion of the hot sulphite liquors, and greatly reduce maintenance costs.

The sheets were perforated with $3/32$ " round holes with $1/2$ " centers, were cut to size to fit their tanks, and are securely fastened to their present wood joists.

The Perforated Allegheny Metal Drainer Bottoms give uniform and fast drainage, do not become clogged and there is no danger of the sheets becoming loose or chipping off as do drainer bottoms made of wood or tile.

**TYPICAL
 INSTALLATION
 OF
 PERFORATED
 DRAINER
 BOTTOM**



The Perforated Allegheny Metal Drainer Bottoms that we have been supplying to the Paper and Pulp Mills are without exception outstandingly good as is proved by the large percentage of repeat orders after the first Perforated Drainer Bottoms have been installed.

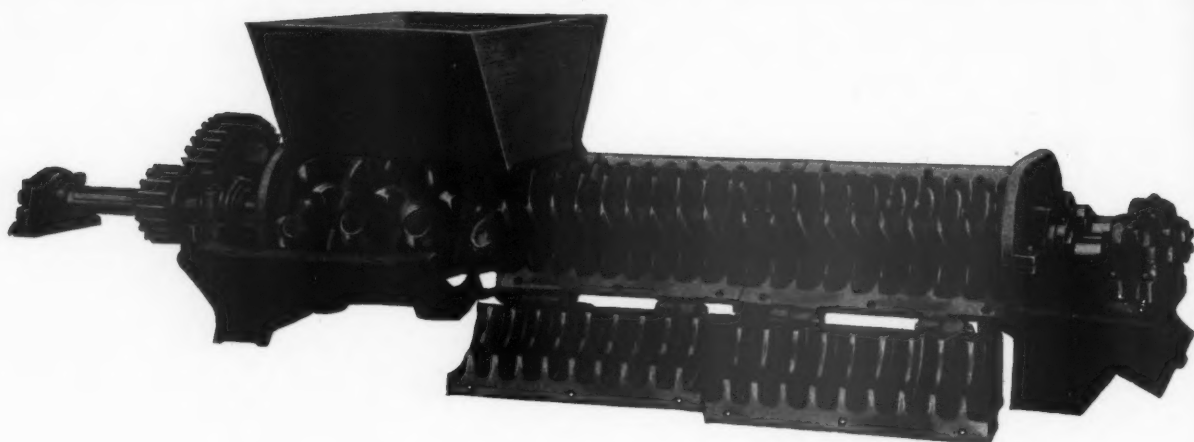
Among our installations are:

Anglo - Newfoundland Development Company, Grand Falls, N. F.
 Abitibi Power & Paper Co., Ltd., Iroquois Falls, Ont., Canada.
 Badger Paper Mills, Peshtigo, Wis.
 Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis.
 Eastern Mfg. Co., Bangor, Maine.
 Marathon Paper Co., Rothschild, Wis.
 Munising Paper Co., Munising, Mich.
 Olympic Forest Products Co., Port Angeles, Wash.
 Rhinelander Paper Co., Rhinelander, Wis.
 Restigouche Co., Ltd., Campbellton, N. B., Canada.

And others.

**NORTMANN-DUFFKE
 COMPANY MILWAUKEE, WISCONSIN.**

If It's BAKERMADE—Eventually it Costs Less



The BAKER IMPROVED VOITH KNEADER



- D**isplaces the Broke Beater
- Cuts Horse Power In Two
 - Saves Two Thirds the Labor
 - Less Sulphite
 - Less Time
 - Operates Continuously
 - Maintains Original Fibre Values
 - Uniform Quality
 - Requires Little Space
 - Bakermade . . . from End to End
 - Let Us Tell You About It - Write

One of the Fastest
Dividend Payers
in the Industry

The Baker Corporation

Saratoga Springs, N. Y.

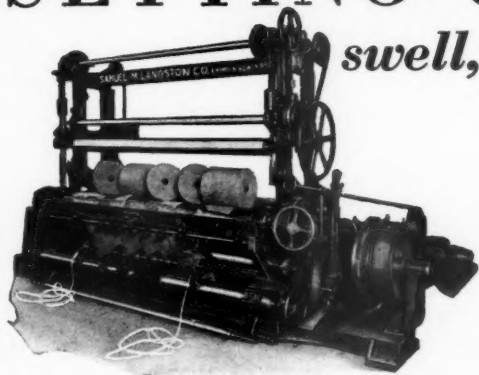
Chippers, Chippers and Crushers, etc.

A Half Century of Experience

When writing BAKER MANUFACTURING CO., please mention PACIFIC PULP AND PAPER INDUSTRY

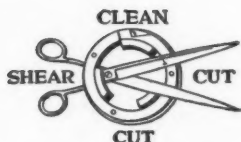


SETTING-UP EXERCISES



swell, before the day starts . . .

but expensive pastimes in your plant. Langston Slitters and Winders are so easily accessible for cutter set-up, lubrication and repairs, that time lost due to shut-downs is reduced to a minimum. Install Langston Slitters for economical, high-speed production.

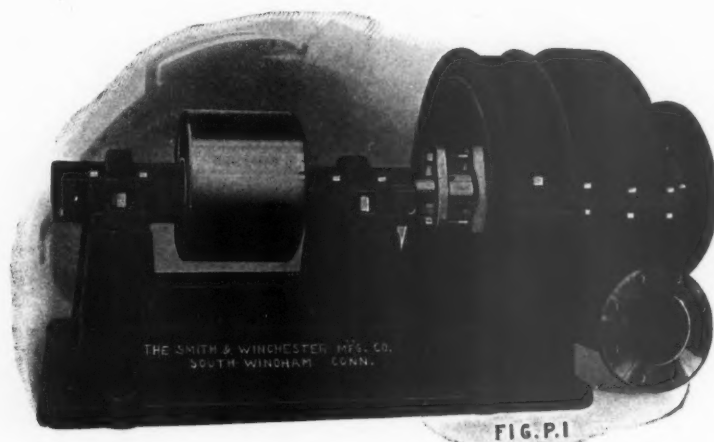


SAMUEL M. LANGSTON COMPANY
Camden, N. J.

LANGSTON SLITTERS

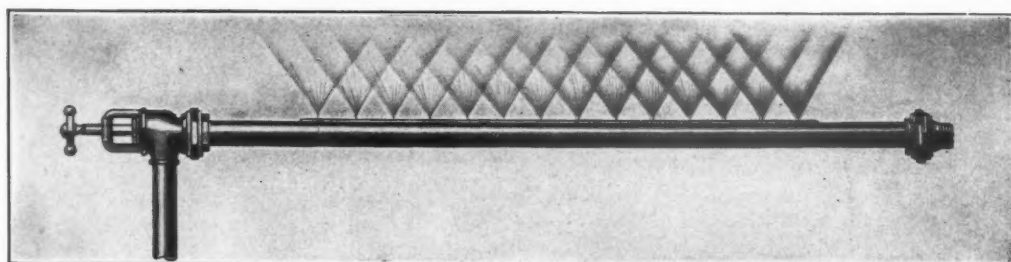
PAPER MILL MACHINERY

FOURDRINIER—CYLINDER—WET MACHINES



The Undercut Trimmer

PAPER BAG MAKING MACHINERY



The Rainstorm Shower Pipe

—ESTABLISHED 1828—

The Smith & Winchester Mfg. Co.

Dept. MFP.

SOUTH WINDHAM, CONN.

When writing to SMITH & WINCHESTER MFG. CO. please mention PACIFIC PULP AND PAPER INDUSTRY



Even in India

... Permutit soft water keeps boilers clean ...

IN INDIA, on the banks of the Hooghly River, stands a manufacturing plant that had a great deal of trouble with the water supply for their boilers (4 - 300 b.h.p. Babcock & Wilcox).

The water was drawn from the river, and varied considerably in composition, usually running about 13 grains of hardness per gallon. In addition to forming scale, the water was very muddy, and deposited sludge and slime in the boilers.

Then they installed Permutit equipment—zeolite water softeners, and deposited sludge and slime in the boilers.

Read what they have to say after 15 months of operation.

... Previous to the installation of the plant, these (boiler feed pumps) were a constant source of expense for valve and valve seat renewals, it being necessary to open them up once a fortnight. . . The boiler mountings had to be machined as the valves and seats were always cut.

Beyond opening a manhole cover at intervals for inspection, nothing has been done to the (feed water) heater since the installation of the softening plant. A weekly blow-down is all that is necessary to keep it in thoroughly good condition.

No. 1 Boiler has just been opened up for annual inspection. If necessary, it would certainly be possible to run for another year without any scaling.

Let us show you how to save trouble and money in your plant, too. Send for a copy of our interesting booklet, "Reducing Fuel and Boiler Plant Operating Costs." No obligation—just clip the coupon and mail it.



The
Permutit
Company

440 Fourth Ave.,
New York

Please send me your free booklet, "Reducing Fuel and Boiler Plant Operating Costs."

Name _____ Position _____

Company _____

Address _____

The Permutit Company

Apparatus for Removing Impurities From Water

SAN FRANCISCO, 1012 BALBOA BUILDING. — LOS ANGELES, 909 WRIGHT CALLENDAR BUILDING

When writing THE PERMUTIT COMPANY please mention PACIFIC PULP & PAPER INDUSTRY



PIONEERS TOGETHER

WHEN WE SAY "PIONEERS TOGETHER" IT IS NO SENTIMENTAL HARKING BACK TO "THE GOOD OLD DAYS" WHICH PROMPTS THE THOUGHT. RATHER IT IS RECOLLECTION OF THE MUTUAL COOPERATION WHICH EXISTED BETWEEN THE FIRST PULP AND PAPER MILLS AND THE FIRST CHLORINE PLANT OF THE PACIFIC COAST . . . COOPERATION WHICH WAS BASED ON MUTUAL APPRECIATION OF THE DIFFICULTIES OF THOSE DAYS, AND OF THE HARD-BOILED FACT THAT FOR EVERYONE IT WAS A CASE OF "FISH, CUT BAIT . . . OR SWIM ASHORE."

IN THOSE DAYS THERE WAS BUT ONE SOURCE OF CHLORINE FOR THE PACIFIC COAST INDUSTRY . . . GREAT WESTERN ELECTRO-CHEMICAL COMPANY. TO HAVE THE SUPPLY ABSOLUTELY CERTAIN WAS VITAL . . . AND IT NEVER FAILED.

TODAY GREAT WESTERN, HAVING STOOD THE ACID TEST OF THE PIONEER DAYS, CONTINUES TO SUPPLY THE WESTERN INDUSTRY WITH PRODUCT AND SERVICE WHICH ARE ALWAYS DEPENDABLE.



**GREAT WESTERN
ELECTRO-CHEMICAL
COMPANY**

SAN FRANCISCO
PLANT: PITTSBURG, CALIF.
SEATTLE, 514 FOURTH AVENUE

When writing GREAT WESTERN ELECTRO-CHEMICAL Co., please mention PACIFIC PULP & PAPER INDUSTRY.



The New Williams Sheet Dryer

Dries Hand Sheets Same as Paper on Big Paper Machine



FEATURES—

1. *Electric Heat, Thermostat Control.*
2. *Sheet clamped under dryer canvas.*
3. *Drys sheet flat in 4 - 5 minutes.*
4. *Heavy polished copper top.*
5. *Large drying surface, 20x20 inches. Four 8x8-inch sheets may be dried at a time.*

WILLIAMS APPARATUS COMPANY
WATERTOWN, N. Y.



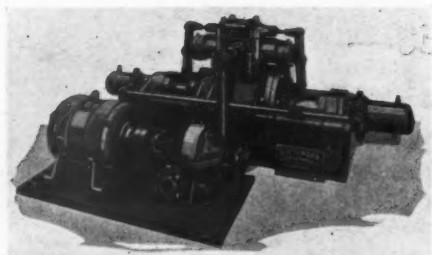
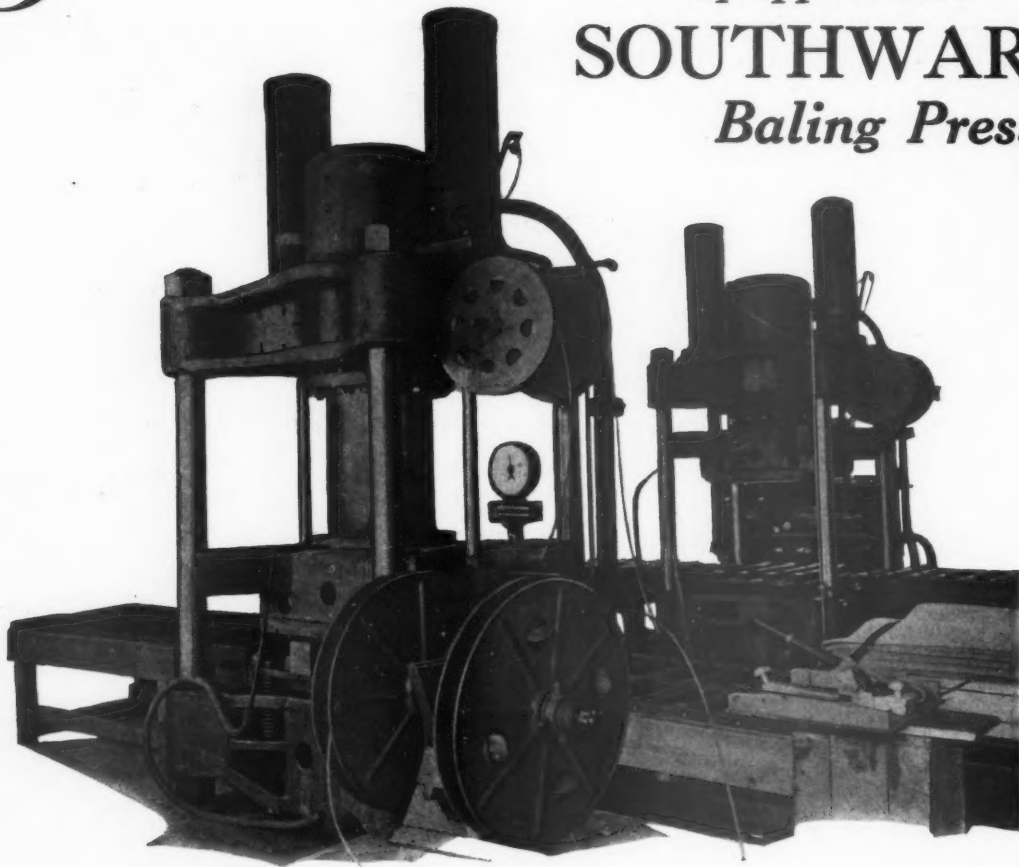
When writing to WILLIAMS APPARATUS CO. please mention PACIFIC PULP AND PAPER INDUSTRY

OLYMPIC'S NEW PLANT.....

equipped with

SOUTHWARK

Baling Presses



Southwark "Hylo" Pumping Unit, Automatic
"Low" to "High" Pressure Without
Accumulator.

Bulletin No. 21

Another instance of Southwark Cooperation in successfully meeting the specific requirements of the manufacturer.

These two 400-ton Southwark Baling Presses, at the new pulp plant of the Olympic Forest Products Company, Port Angeles, Washington, produce 25 compressed bales per press per hour. Both presses are operated by a Southwark "HYLO" Pumping Unit, with its "low" to "high" automatic pressure feature, controlled by a single operating valve at the press.

WE SPECIALIZE IN THE MANUFACTURE OF PULP PRESSES, BALING PRESSES, WALL AND INSULATING BOARD PRESSES.

Write for Bulletin No. 14

Chicago
Fisher Building

SOUTHWARK
FOUNDRY AND MACHINE CO.
PHILADELPHIA, PA.

Akron, Ohio
United Building

Since 1836

When writing SOUTHWARK FOUNDRY & MACHINE CO., please mention PACIFIC PULP AND PAPER INDUSTRY



For Hog Fuel Fired Boilers

At the Olympic Forest Products Company's new 170-ton bleached sulphite pulp mill economical operation of Hog Fuel Fired Boilers is assured by the use of Bailey Boiler Meters.

Long recognized as the standard combustion guide, in leading central stations and industrial plants Bailey Boiler Meters are now being applied to the operation of Hog Fuel Fired Boilers. Records of Steam Flow, Air Flow and Flue Gas Temperature are co-ordinated so that combustion losses are apparent the instant they occur. In addition to exposing combustion losses Bailey Boiler Meters also indicate what adjustments are necessary to restore economical operation.

Regardless of the fuel or method of firing, Bailey Boiler Meters and Multi-Pointer Gages will enable your boiler operators to secure test efficiencies in every day operation.

Write for Bulletin No. 43A; it tells of savings made by Bailey Meters.



View of Hog Fuel Fired Boilers at Olympic Forest Products Company showing installation of Bailey Boiler Meters and Multi-Pointer Gages. Note the piles of hog fuel in the left foreground of the general plant view shown above.

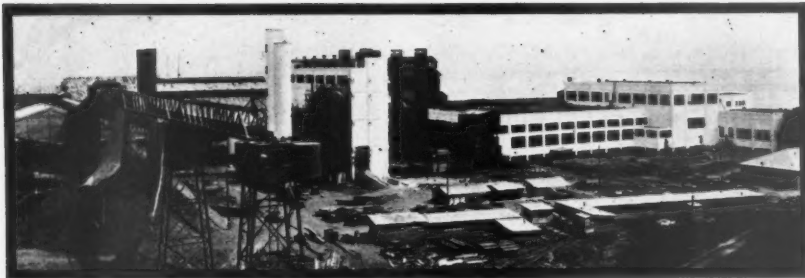
BAILEY METER CO.

1037 IVANHOE ROAD

CLEVELAND, OHIO.

◀ ▶ ▶ Bailey Meter Company Limited, Montreal, Quebec ▶ ▶ ▶

When writing BAILEY METER CO., please mention PACIFIC PULP AND PAPER INDUSTRY.



At the . . .

OLYMPIC FOREST PRODUCTS COMPANY

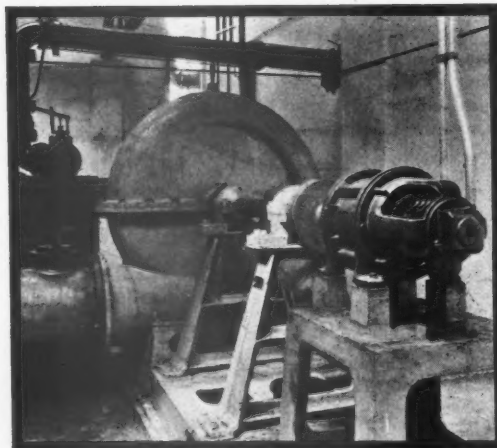
Port Angeles, Wash.



APPLETON FLAT SCREENS

The Olympic Forest Products Company's new mill is an important step in the shifting of pulp manufacturing to the Pacific Coast and represents the final recognition of the West Coast's ability to produce the highest quality sulphite pulp. The illustration above is a view in the screen room showing the Appleton Flat Screen installation.

THE Appleton Flat Screens and other Appleton equipment in the Olympic Forest Products Company's new mill were built on the Pacific Coast by the WILLAMETTE IRON and STEEL WORKS of Portland, Oregon.



Appleton Acid Pump in the Acid Plant

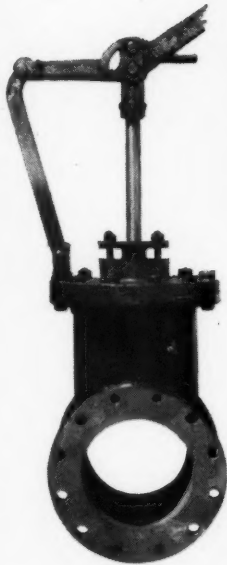
THE APPLETON MACHINE COMPANY, APPLETON, WISCONSIN

Represented on the Pacific Coast by the
PAPER MILL EQUIPMENT COMPANY,

Northwestern Bank Building, Portland, Ore.

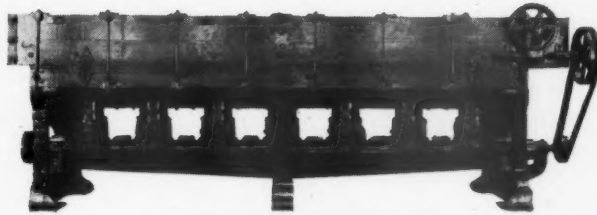
a **SERVICE** *—that is profitable to You*

as it embraces **QUICK DELIVERY, PERSONAL CONTACT and LOWER FREIGHT COSTS.** Take advantage of it by having your Pulp and Paper Mill Machinery built on the Pacific Coast by **SMITH and VALLEY.**



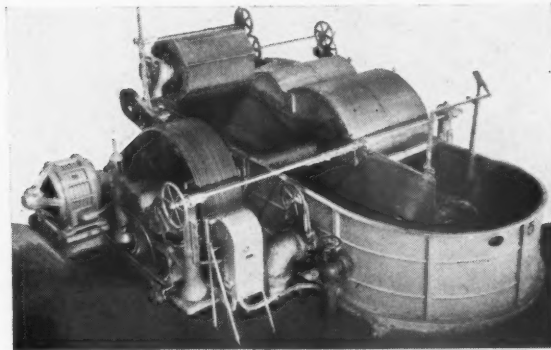
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Single Acting
Plunger Type
Non-Clogging
Will not Stick

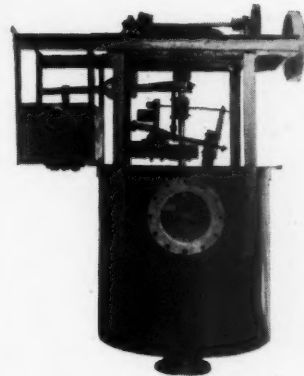


FLAT PLATE SCREENS

Noiseless—Efficient—Built for continuous and economic operation



Smith and Valley Hi Speed Beater—Built for any capacity required. Wood, Iron, Concrete or Metal lined tubs



WARNER EQUALIZER

Designed to control and Regulate all Stock Consistency

SMITH and VALLEY SERVICE is Immediately Available on the Following Equipment—

Voith High Pressure Stock Inlet
Plug Valves
Niagara Beaters
Valley Laboratory Equipment
Wet Machines
Deckers
Barkers—Sizes 4, 5, 6 and 7 foot
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Chip Screens

Quick Opening Beater Dump Valves
Pulp Grinders
Jordan Engines
Paper Mill Rolls—all descriptions
Cylinder Machines
Cylinder Moulds—all kinds
Complete Wood Room Equipment
Special Pulp and Paper Equipment

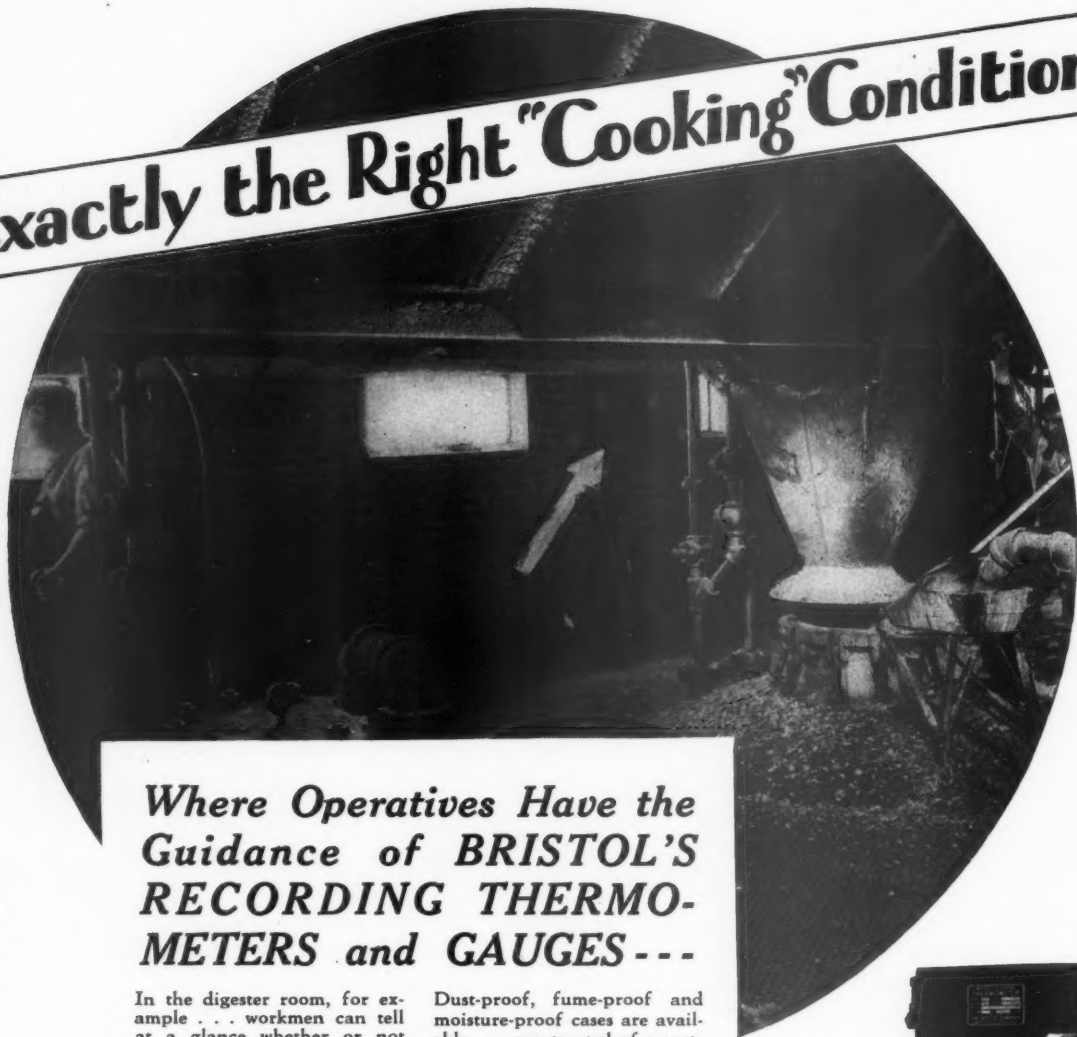
Smith and Valley Iron Works Co. *Builders of Pulp and Paper Mill Machinery* **PORTLAND, OREGON**

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San Francisco—Portland—Seattle

When writing to SMITH & VALLEY IRON WORKS please mention PACIFIC PULP & PAPER INDUSTRY

Exactly the Right "Cooking" Conditions



Where Operatives Have the Guidance of BRISTOL'S RECORDING THERMOMETERS and GAUGES ---

In the digester room, for example . . . workmen can tell at a glance whether or not temperature and pressure conditions are being correctly maintained. Thus any predetermined operating schedule can be duplicated with certainty day after day, and a consistently uniform quality of pulp produced.

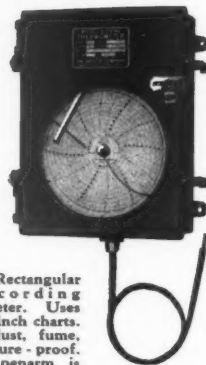
Bristol's Recording Gauges and Thermometers, are simply designed and ruggedly constructed to withstand constant "shop" use.

Dust-proof, fume-proof and moisture-proof cases are available . . . constructed of a rust-proof aluminum alloy metal. The inverted penarm arrangement is standard.

But get complete details! Catalogs, Bulletins, etc., will be sent on request to any interested person in your plant.

Write today . . . and remember, Bristol's Field Engineering Service is available — without obligation.

The BRISTOL COMPANY
WATERBURY, CONNECTICUT



Bristol's Rectangular Form Recording Thermometer. Uses 12 and 8-inch charts. Case is dust, fume, and moisture-proof. Inverted penarm is standard.

BRISTOL'S

Recording Instruments



Here's Effective Bleach Washing

IN an important mill* a 130 sq. ft. Oliver United Bleach Washer is handling about 30 tons of glassene stock every 24 hours.

... and the discharged stock is carrying less than 0.75 pounds of Ca Cl_2 per ton.

We'd call this well-washed stock, wouldn't you?

Such effective removal of chemicals is accomplished 90% by dilution and 10% by replacement. The bleach stock can be diluted in the chest with white water to about a 1% consistency. With this method, about 90% of the impurities are removed without the use of any wash water. The balance (10%) is then removed by wash water which, because of the excellent sheet formation, can be kept to a minimum. Only about 4,000 gallons per ton is needed for final washing.

Oliver United Bleach Washers are the lowest-cost units that can be installed. They remove the chemicals 99% plus, with much less water and with practically no fibre loss.

*Name on request.

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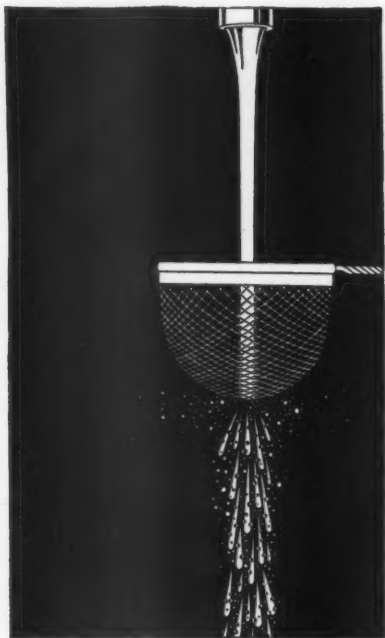
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KENWOOD TANNED FELTS HAVE THE OPENNESS FOR UTMOST WATER REMOVAL ▾ ▾

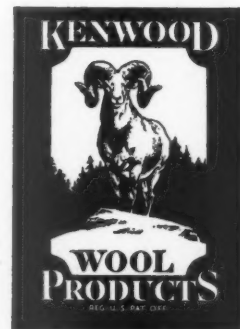
Through an entirely new method of yarn construction that neither adds weight nor bulk to the yarn, the modern Kenwood Tanned Felt affords greater openness and increased strength which, in the final analysis, means lower felt cost per ton. These advantages, combined with the well known properties of longer felt life, smoother surface and utter dependability of Kenwood Tanned Felts, place them in a definitely higher class.

Kenwood pioneered the one sided board felt. Kenwood research developed and perfected the patented Kenwood tanning processes which protect the felt from the weakening of acids in the water. This third major development—Improved yarn construction—is the natural result of the progressive, scientific development that has always marked the manufacture of Kenwood Felts.

F. C. HUYCK & SONS

KENWOOD MILLS, ALBANY, N. Y.

KENWOOD MILLS LTD., ARNPRIOR, ONTARIO, CANADA



Link-Belt Announces Promal —a New Metal for Chains

**Research Develops Cast Chains Having
a Hitherto Unattained Combination
of High Tensile Strength
and Great Wear Resistance**

LONGER LIFE FOR CHAINS! This has been the constant aim of Link-Belt research engineers. This has been the objective responsible for the long list of chain improvements introduced to industry under the Link-Belt name. *This was the purpose behind the latest and one of the greatest of Link-Belt achievements—Promal Chains.*

Promal Chains are the result of extensive research carried on in Link-Belt plants to develop a better chain material. About four years ago this research bore fruit in the form of an important discovery. It was found that high-grade malleable iron could be processed in such a way that it became practically a different metal, with vastly improved qualities.

In previously-known processing methods, one or more desired characteristics had been gained at the sacrifice of others, but this new method resulted in a metal with a perfectly-balanced combination of the three qualities desirable in a sprocket chain material: great toughness to resist extreme tension without permanent stretch; great strength in proportion to weight and bulk; and characteristics to resist abrasive wear.

Physical Characteristics

Standard tests of Promal metal afforded an interesting comparison of its characteristics with those of other cast chain materials. The table at bottom of page emphasizes the relative merits of Promal and two other more familiar materials.

Due to the structure of the metal, Promal Chains withstand abrasive wear far better than the usual cast chain. It is also worthy of note that Promal has an exceptionally high yield point (25% higher than that of average malleable iron). This, engineers recognize as of greater importance than ultimate strength. In addition to having this high yield point Promal metal is tough and ductile so that it withstands shock and fatigue loads. High temperature reduces its tensile properties somewhat, but temperatures up to 1000° F. will not cause it to become brittle.

Undergo Field Tests

Although laboratory tests indicated the long-wearing qualities of Promal Chains at the time that the process of their manufacture

Show Surprising Performance

As reports came in from operating men who were keeping close check on their Promal Chains, it became apparent that the new product was surpassing even the most optimistic predictions.

For example, one Promal Chain in a Pennsylvania cement mill, running night and day in an atmosphere saturated with cement dust, lasted more than twice as long as the malleable chain used before and still showed no evidence of serious wear.

In an Ohio plant a Promal Chain driving a tumbling barrel lasted six times as long as the malleable chain it replaced and was still in operation.



Typical Promal Chain

One of the largest sawmills on the West Coast writes:

"In reference to installation of Promal transfer chains which we installed in the transfer to our No. 1 Resaw in our West Fir Mill—

"To date this chain has given us double the wear we have been able to secure from the standard malleable chain, and will still give considerable service.

"It is our present intention, as it is necessary to replace chain on similar installations, to do so with the Promal rather than with the malleable chain, believing that in this way our cost will be materially reduced."

Adopted as Standard

As many similar reports of better performance were recorded during more than three

these were some of the largest manufacturers of agricultural implements, companies making or operating sand and gravel handling equipment, numerous fertilizer plants, several plaster, gypsum and cement mills, and many others.

Now Available to All

Promal Chains have proved their worth. With a background of years of superior performance, under the severest of conditions, they can be offered to the industry with the assurance that all claims for greater strength and longer life in these cast chains will be borne out in actual use.

As Mr. Charles Piez, Chairman of Link-Belt Company, says: "Promal Chains have given an excellent account of themselves. We are now ready to offer them to the public with full confidence that their splendid qualities will find broad use."

Production Controlled by Link-Belt

It is important to include here the fact that Promal is fully protected by patents, and that the name is a registered trademark. The process is fixed. Every step is completely carried out and controlled in Link-Belt's own plants, and the uniform high properties of Promal Chain metal and finished chain are thus assured. It should also be plainly understood that Promal Chains are not expected to displace malleable iron for all uses. Malleable iron chain, as produced by Link-Belt, meets satisfactorily and with utmost economy a great range of requirements for conveying and power transmission service. Promal Chains are used for the hardest cast chain duties, where the increasing of normal chain life will yield the greatest return for each dollar of chain investment.

Important Uses

Promal Chains are recommended for four general classes of service:

- (1) Elevators, Conveyors and Chain Drives operating under gritty or abrasive conditions.
- (2) Chain Drives, employing cast chains, which require greater strength than is shown by malleable iron chains, size for size.
- (3) Drag, Scraper and Flight Conveyors, when the chain drags and is subject to abrasion.
- (4) Heavy Duty Drives of comparatively high speed, short centers and large sprocket ratios.

Promal Chains can be furnished in all standard sizes of cast chains, with all standard attachments. These standard sizes and list prices are listed in the new Promal Chain Book No. 950, which will be sent to anyone interested, on request.

Any of the Link-Belt offices will be glad to make an analysis of your elevating, conveying and power transmission chains and submit an unbiased recommendation as to whether or not it will pay you to adopt Promal Chains. Promal Chains should be used where greater resistance to wear is desired—for longer life in abrasive services—for the hard jobs where operating conditions are severe, and where the incomparable strength and toughness of Promal will insure dependable service at lowest cost.

LINK-BELT COMPANY

Leading Manufacturers of Equipment for Handling
Materials Mechanically and for the Positive
Transmission of Power
200 S. Belmont Ave., Indianapolis, Ind.
Offices in Principal Cities 4068

	PROMAL	Average Malleable Iron	Cast Steel Mild Carbon
Average Yield Point, lbs. per sq. in.....	45,000	36,000	34,000
Average Ultimate Strength, lbs. per sq. in.....	65,000	54,000	60,000
Brinell Hardness.....	170-190	110-130	120-140

was first standardized, no public announcement was made concerning them. In conformity with the established Link-Belt policy of offering to industry only products of known, dependable performance, Promal Chains were withheld from the general market for over three years to permit extensive field tests under actual service conditions.

years of quiet testing, service data covering practically all classes of duty were obtained on Promal Chains. On the basis of this data and after thorough trial, several large chain users became convinced that Promal Chains were the more economical in the long run and shifted their standard specifications from malleable iron chain to Promal Chain. Among

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**BLEACHED
SULPHITE PULP**



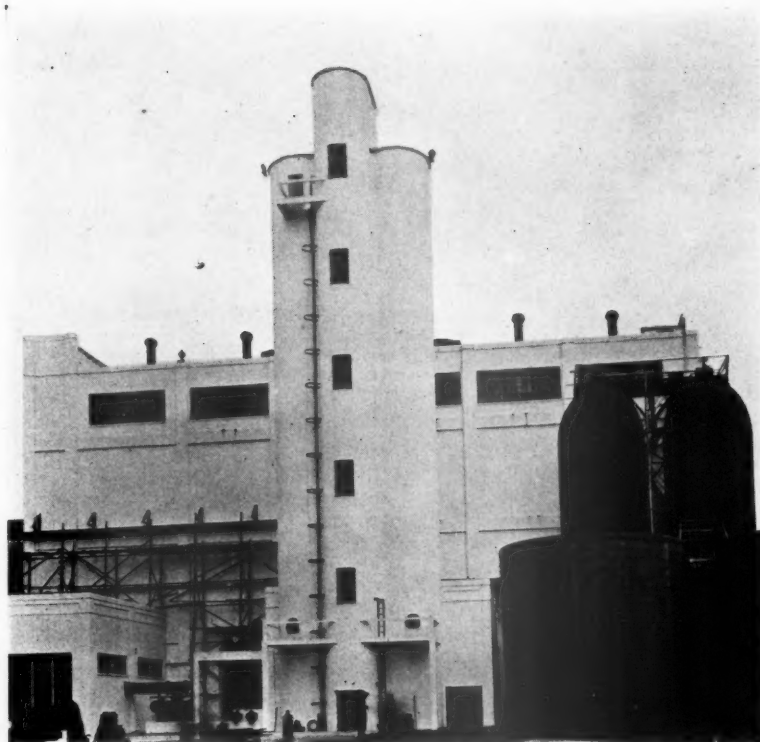
***Puget Sound Pulp
& Timber Co.***

Everett, Washington



**UNBLEACHED
SULPHITE PULP**

The **JENSSEN**
Two Tower Acid System
at the
Olympic Forest Products Company's
New Sulphite Mill



The above photograph shows the Jenssen Acid System at the new Olympic Forest Products Company's bleached sulphite pulp mill at Port Angeles, Wash.

130 Jenssen Two Tower Acid Systems
... Now in Operation or Building

G. D. JENSSEN CO.

200 Fifth Avenue, New York City

1017 White Building, Seattle

When writing G. D. JENSSEN CO. please mention PACIFIC PULP & PAPER INDUSTRY

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SUBSCRIPTION RATES

United States and Canada.....\$4.00
Other Countries.....\$5.00
Single copies.....\$.35

VOLUME IV

AUGUST, 1930

NUMBER 9

MILLER FREEMAN, President
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THE PACIFIC COAST JOURNAL FOR PRODUCERS, CONVERTERS, AND DISTRIBUTORS OF PULP, PAPER, AND BOARD.

SEATTLE
71 Columbia Street

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Sherlock Building

SAN FRANCISCO
369 Pine Street

LOS ANGELES
Douglas Building

¶ Right now things look mighty good for the Pacific Coast if we will only try to pierce the temporary smoke of pessimism.

¶ There are many threads of evidence to indicate that development of pulp and paper manufacturing in the forest-endowed regions of the Pacific Northwest, rather than resting status quo, as some would have us believe, is merely gathering for a new burst of speed.

¶ In the current issue the reader is given an opportunity to tour the plant of the Olympic Forest Products Company, one of the newest and finest of pulp mills. It incorporates the latest features of engineering, and adds substantially to the

industry's total investment on the Pacific Coast.

¶ Next month this journal will present the new \$4,000,000 mill of the Puget Sound Pulp & Timber Company, a thoroly modern mill designed to make the highest grades of pulp.

¶ Here are two new payrolls transplanted to the West. Their products will flow Eastward largely to supplant pulp production which no longer finds forests ample for supply.

¶ At Longview the Weyerhaeuser Timber Company, a name long established in the wood-using industries and one of the strongest organizations in the world from the standpoint of timber-holding, will

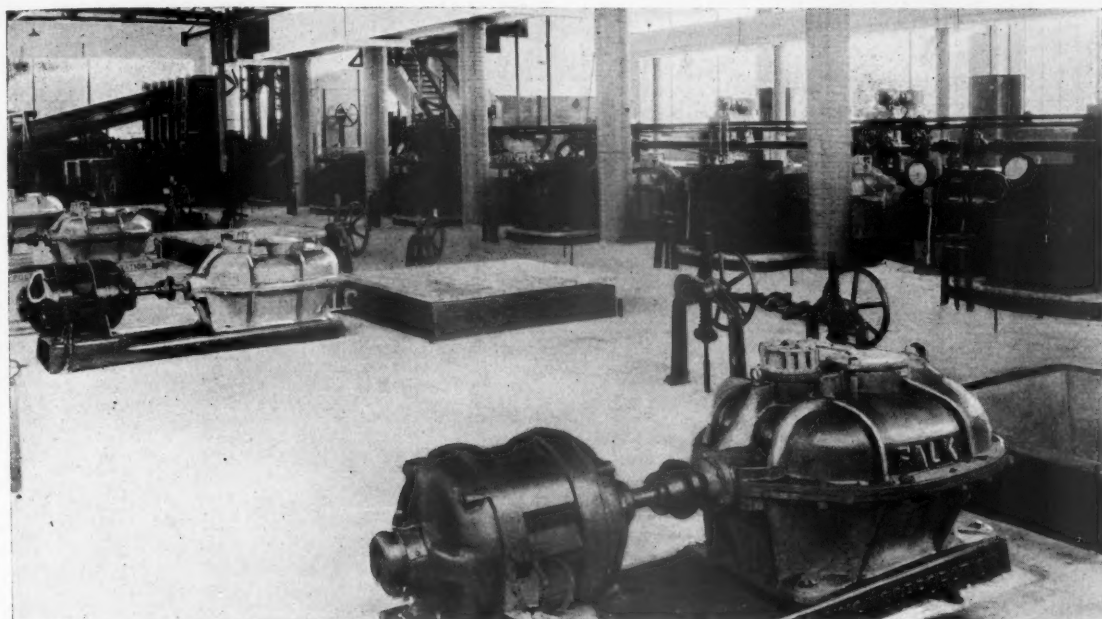
soon begin construction of a new pulp mill to use its surplus wood.

¶ At Tacoma the St. Regis Paper Company, thru its Vice-President R. B. Maltby, who has just made his first visit to the Pacific Coast, announces plans for a paper mill unit in conjunction with the kraft pulp mill it recently acquired from the Union Bag interests.

¶ The present situation of poor markets and falling prices is a favorable situation for the Coast mills, altho it may cause temporary hardship. We are passing thru an era when the world's marginal mills may be eliminated, but Pacific Coast mills, being modern and having low cost wood, stand best to survive.

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This Two-Phase Bleaching Plant in the Olympic Forest Products Co.'s New Sulphite Pulp Mill

Takes full advantage of certain characteristics which are inherent in the nature of the bleaching reaction, but were little understood until recently;

A PRIMARY PHASE in which the easily broken down encrusting impurities are removed without bleaching them;

A SECONDARY PHASE in which the residue remaining in the fibre is completely bleached out.

The result is the HIGHEST EFFICIENCY yet obtained in any commercial bleaching process.

PULP BLEACHING CORPORATION

200 Fifth Avenue

New York City

When writing PULP BLEACHING CORP. please mention PACIFIC PULP AND PAPER INDUSTRY



Woodpulp Agents

We act as sales agents and distributors for the entire output of Sulphite and Kraft Producing Mills.

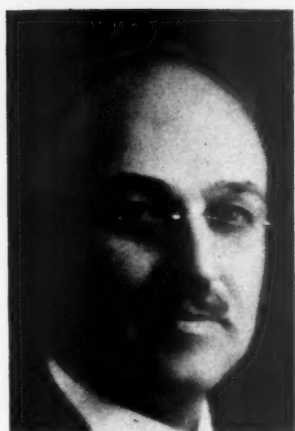
Paper Distributors

Mill agents and dealers for the distribution of all classes of paper in the Eastern markets.

BULKLEY, DUNTON & COMPANY

75-77 DUANE STREET

NEW YORK



F. R. TITCOMB

THE Weyerhaeuser Timber Company, one of the largest of timber holders, loggers and sawmill operators on the Pacific Coast, will build in the near future a 150-ton bleached sulphite pulp mill at Longview, Washington, in connection with its extensive modern lumber mills completed in 1929, according to an official announcement by F. R. Titcomb, general manager. O. C. Schoenwerk, of Chicago, has been retained to do the engineering work on the project.

The announcement answers a long-standing question and puts at rest surmise that has been lively in Longview and in the Pacific Northwest ever since the Weyerhaeusers first entered the Columbia River territory.

The Longview sawmill is only one of many Weyerhaeuser properties on the Pacific Coast. It occupies a site of several hundred acres fronting the Columbia River about three miles from Longview's business section. Over its own 1800-foot deep water wharf and main line rail connections it has excellent shipping facilities.

Altho strategically located to draw its logs from the great timber empire tributary to the lower Columbia, the company conducts its own logging camps and railroads. An extensive stand of fine timber in Cowlitz county, Washington, was opened up specifically to serve the Longview mill. The stands in this region include principally Douglas Fir, Western Hemlock and Western Red Cedar in mixture. The Hemlock has often gone begging, but, with the absorption of Hemlock logs by the new pulp mill, it is probable that the Weyerhaeuser operations will be an important factor in Columbia River log prices.

The pulp mill will complement the lumber operations and effect a more efficient utilization of the chief raw material—wood—which is in line with the Weyerhaeuser general policy. The company will thus find some outlet for its sawmill waste which it has steadfastly refused to tie up in contracts heretofore. The pulp mill will be constructed adjacent to the sawmills.

Entry of the Weyerhaeuser interests into the field of pulp is regarded as significant in the pulp and paper industry of the Coast. It represents in a way the trend of the times toward the alliance of pulp and lumber under a single management. As a well established and strong company with a record of independent action, backed by more than ample resources of cash and timber, it brings to the Coast pulp industry a new and powerful factor.

Weyerhaeuser

will build

NEW PULP MILL

in connection with lumber operations at

Longview, Washington

The present widespread Weyerhaeuser Timber Company had its origin with the late Frederick Weyerhaeuser, who, emigrating to this country from Germany in his late 'teens, started his first lumber manufacturing enterprise at Rock Island, Illinois, in 1858. The activities spread into the white pine timber of Wisconsin and Northern Minnesota. At Cloquet, in the latter named state, today is one group of Weyerhaeuser enterprises converting values from the forests. The products include several grades of pulp, paper, wood-fibre insulating materials, lumber and wood specialties.

Long appreciating the potentialities of the timber regions on the Pacific Coast, the Weyerhaeusers early began to accumulate their holdings which today constitute such a vast timber empire. In 1900 the Weyerhaeusers entered the Pacific Coast field with the purchase of a sawmill in Idaho. In succeeding years other Idaho sawmills were acquired.

First invasion of the Douglas Fir and Western Hemlock forests west of the Cascade range occurred in 1902 with the purchase of a sawmill at Everett, Washington. Since that time Weyerhaeuser has built two new mills at Everett and still more at other locations. The two latest and most modern are the big mill at Longview, which began cutting in June, 1929, and a mill at Klamath Falls, in Southern Oregon, completed some months later.

Having continued successfully in the wood-using industries for some 70 years Weyerhaeuser anticipates no disintegration thru exhaustion of resources. It has, therefore, a real interest in reforestation and contemplates the perpetual cropping of its timber lands most suited for growing trees. This work is directed by the company's own forester.

Mr. Schoenwerk, who will be the key man in the construction of the new pulp mill unit, arrived on the Pacific Coast from Chicago the first week of August. He was formerly for some time in charge of the joint office maintained in Seattle by several of the so called "Zellerbach" mills and was a principal figure in the design and construction of the new 175-ton bleached sulphite pulp mill recently completed at Port Angeles, Washington, by the Olympic Forest Products Company.

Weyerhaeuser's properties at Longview are under the general resident managership of A. L. Raught, Jr.

The Weyerhaeuser pulp mill project is entirely distinct from, and not to be confused with, other wood-using plants and enterprises contemplated at Longview by the Wood Conversion Company and Northwest Paper Company of Cloquet, Minnesota.

Puget Sound Mill Shipping Pulp

New dollars are beginning to roll into Everett, Washington, as freighter and freight train haul away bleached sulphite pulp manufactured from whole Western Hemlock logs direct from the forest in Everett's newest industrial plant, the \$4,000,000 pulp mill of the Puget Sound Pulp & Timber Company.

Beginning production in June, the new mill is rapidly getting into full swing. Executives report everything to be progressing in a satisfactory manner. Both of the two 154-inch fourdrinier machines used for drying the pulp are now in operation.

The mill operators attribute the exceptional cleanliness and strength of the pulp in the early production period to the many features incorporated in the mill design. Use of the whole log under the mill's system of breaking down in the sawmill as little as possible, together with the washing of the wood and the new departures in methods of chipping are said to be important factors in producing quality. The long cooking period and the unusually thorough washing process further impart desirable characteristics to the product.

In the machine room the washed air system and method of drying a thin sheet are other factors to be considered. In all parts of the mill stress is put on cleanliness. At present the technical control department is keeping its laboratory busy in standardizing quality and bringing about those little refinements to be achieved in any new mill.

Report On Alaska Paper Projects Finished

J. C. Dort, hydro-electric engineer representing the Federal Power Commission, sailed from Juneau, Alaska, on August 2 for Washington, D. C., after completing a 30-day field survey in the Ketchikan and Juneau districts checking the applications of the Zellerbachs and George T. Cameron for final permits for two 80,000 HP water power developments to serve two proposed 200-ton paper mills in Southeastern Alaska.

The two interests mentioned have for the past three years, following the granting of temporary licenses, conducted field studies in Alaska. Their original two-year period, granted for preliminary investigation, was once

extended for another year. Both George T. Cameron, publisher of the San Francisco Chronicle, and the Zellerbachs, applied just before the expiration of the extension period on June 16, 1930; for final licenses to develop hydro-electric projects. It was to check these applications in the field that Mr. Dort came out from Washington, D. C.

The field investigations by Mr. Dort were greatly expedited by the use of airplanes. They were made in the company of B. F. Heintzleman, U. S. Forest Service, Juneau, who has been the government's official contact on the ground in Alaska.

Mr. Heintzleman sailed from Juneau for San Francisco the second week in August to have further conferences with the Zellerbachs and Cameron for ultimate development of Alaska's vast power and timber resources.

Mr. Dort's report is now in the hands of the Federal Power Commission, but its substance will not be released for publication until that body has studied it. Regional Forester Charles H. Flory of Alaska's Tongass National Forest, announced that final licenses may possibly be granted by October 1 or sooner.

Nels Teren-Dorothy Leadbetter

Formal announcement was made on August 2 that Miss Dorothy Leadbetter of Portland would become the bride of Nels Teren of New York. Miss Leadbetter is the daughter of F. W. Leadbetter, president of the Columbia River Paper Company and one of the leading executives in the Pacific Coast's pulp and paper industry.

Mr. Teren is manager of the kraft mills of the St. Regis Paper Company. He was a Coast visitor recently in official capacity to survey the 160-ton kraft pulp mill of the Union Bag & Paper Power Company at Tacoma at the time of the sale of that mill to Niagara Hudson Power Company, which subsequently turned the property over to the St. Regis Paper Company.

The wedding will be solemnized at the Leadbetter summer home near Camas, Washington, on the afternoon of August 26.

While no official statements have been made, the marriage announcement has raised much street gossip regarding the probable association of Mr. Teren with the Leadbetter mills. The Leadbetter mills now include the Oregon Pulp & Paper Company at Salem, Oregon; the Columbia River Paper Mills at Vancouver, Washington; the California-Oregon Paper Mills at Los Angeles; the Tumwater Paper Mills at Tumwater, Washington; and the Vancouver Kraft Company at Port Mellon, B. C. The Tumwater mill is presently idle, while the Port Mellon property rests temporarily in a state of semi-completion, following an extensive re-vamping started last year.

Pacific Coast Pulp To Germany

Fifty tons of wood pulp were loaded at Tacoma, Washington, on a freighter bound for Germany the latter part of July. The shipment followed a smaller experimental lot sent out of Tacoma to Germany some weeks previously. The movement is significant, though small. Pacific Coast wood pulp from other ports has been moving intermittently to several European countries in the past couple years. The effect is to acquaint the European consumers with a new and growing source of wood supply in the Pacific Northwest part of America.

NEXT MONTH

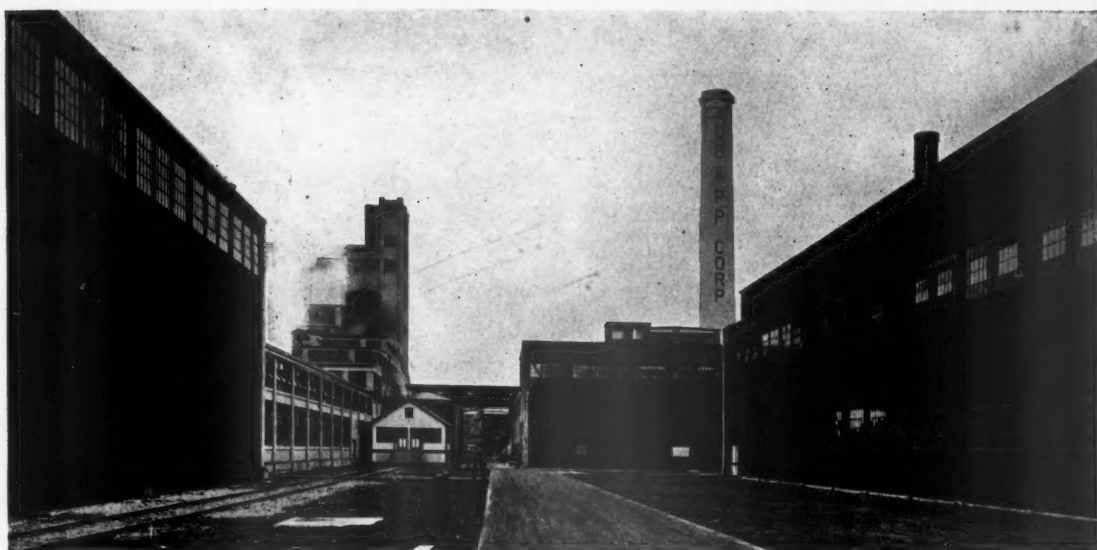
PACIFIC PULP and PAPER INDUSTRY

will present a complete descriptive feature of an unusually interesting and modern Pacific Coast plant, the 175-ton high-grade bleached sulphite pulp mill of the—

PUGET SOUND PULP and TIMBER COMPANY

... at ...

Everett, Washington



St. Regis Kraft Company, which recently acquired the 160-ton kraft pulp mill at Tacoma, Washington, from the Union Bag & Paper Corporation, has plans for erecting a \$2,000,000 paper mill unit in connection.

St. Regis Plans Coast Paper Mill

PROSPECTS for early construction of a paper mill in connection with the 160-ton kraft pulp mill at Tacoma, Washington, were renewed in official statements last month. Further, these statements apparently indicate that the St. Regis Paper Company, strong Eastern organization headed by Floyd Carlisle, will become an important factor in the pulp and paper industry of the Pacific Coast.

The name of the kraft pulp mill at Tacoma has been officially changed to the St. Regis Kraft Company, a subsidiary of the St. Regis Paper Company. This mill, one of the most modern sulphate mills yet constructed, was originated by the Union Bag & Paper Corporation to create a source of low cost pulp to offset rising pulp costs in the East. Completed in late 1928, the mill was operated by Union Bag's subsidiary, the Union Bag & Paper Power Corporation. The properties of the subsidiary included, in addition to the pulp mill, certain hydro-electric properties on the Hudson River in New York state.

In recent months the Niagara Hudson Power Corporation—Carlisle controlled—purchased the subsidiary from the Union Bag parent corporation, subsequently divorcing the power properties and changing the Tacoma pulp mill name to the Pacific Pulp Mill Corporation. With the substitution of the name "St. Regis Kraft Company" for "Pacific Pulp Mill Corporation" the transfer of the Tacoma kraft pulp mill to St. Regis is complete. There have been no changes of personnel at Tacoma. W. W. Griffith continues as resident manager.

To inspect St. Regis' new property, R. B. Maltby, vice president, journeyed to the Pacific Coast in July and spent several weeks in the West. During his stay he

made official statements in the daily press that St. Regis "will erect in conjunction with the pulp mill a paper manufacturing plant that will more than double the present payroll and investment." The mill would make the heavier grades of paper, such as used for cement bags. Beginning of construction was promised at an early date, somewhat contingent, however, on market conditions.

Mr. Maltby indicated that his company was only making a beginning on the Pacific Coast.

At the same time announcement was made by Mr. Maltby in Seattle papers that several sites were being considered for the erection of a paper bag factory in Seattle to cost about \$250,000 and employ 150 persons. The factory would produce heavy duty multi-wall bags for bulk products such as cement and plaster. Mr. Maltby indicated that only a fraction of the Pacific Northwest cement and similar products was now being marketed in paper as compared to a much wider adoption in other parts of the nation.

St. Regis Paper Company on July 15 announced its acquisition of the Bates International Bag Company, which in recent years has licensed many factories to make the much-used Bates multi-wall self closing bags for cement and similar products. Bates now operates one such factory at Los Angeles and another has been contemplated in the Northwest for some time. D. A. Fleischmann, recently appointed manager of the Bates plant at Los Angeles, accompanied Mr. Maltby on a part of this tour in Washington.

Occasion was also taken by Mr. Maltby to visit the semi-completed 100-ton kraft pulp mill of the Vancouver Kraft Company at Port Mellon. B. C., in the company of F. W. Leadbetter, president of that organization and several other Pacific Coast mills.

Grays Harbor Earns \$542,611

Net earnings of the Grays Harbor Pulp & Paper Company, for the fiscal year ended April 30, 1930, after depreciation and allowance for Federal taxes, available for bond interest requirements, were \$542,611. This is equivalent to nearly 2½ times total annual interest charges.

The company's pulp mill has a daily capacity of about 175 tons of bleached sulphite pulp. The paper mill unit has a capacity of about 60 tons daily of bond paper. Earnings for the past fiscal year were derived from the operation of the pulp mill for the entire period, but include operations of the paper mill only during the last half of the year. Construction of the paper mill was completed late last summer, and full commercial production obtained during October. Operating results indicate the company's plant to be a highly efficient, low cost producer.

The pulp mill not only supplies the entire requirements of the company for paper manufacture, but produces a considerable quantity of high grade pulp which is sold in Eastern markets. The paper mill is operated under the supervision of expert paper makers drawn mainly from the Hammermill Paper Company, Erie, Pa.

The company is largely owned by the Hammermill Paper Company, and a group of individuals closely affiliated with other Pacific Coast paper interests, mainly the Zellerbach group. E. M. Mills is president.

The earnings statement for the fiscal year ended April 30, 1930 follows:

Net sales	\$2,864,619.28
Cost of sales	2,011,890.39
Profit before depreciation	\$852,728.39
Depreciation	275,416.47
Allowance for Federal taxes	34,700.00
Profit from operations	\$542,611.47
Annual Bond interest requirements	225,000.00

New Salem Board Mill Soon Ready

Sometime in August the Western Board Products Company expects to begin production in its new plant at Salem where it will manufacture eight to ten tons daily of binder board made from flax shives and wood pulp screenings.

The new plant has a main building 60 by 175 feet with two auxiliary buildings for steam plant and storage.

The stock will be cooked in a tubular, rotating digester, prepared in beaters and formed on paper machines. Drying will be accomplished in separate drying rooms.

F. Puttaert, formerly of San Francisco, is manager.

The enterprise was financed mostly in Salem and its executives and stockholders are mostly from Salem.

Oppose Street Vacation For Salem Mill

At one end of the sulphite mill operated by the Oregon Pulp & Paper Company at Salem, Oregon, for the manufacture of greaseproof, glassine and sulphite bond papers, is a stub street which the mill company has asked the city to vacate that a needed warehouse may be built. Apparently a simple issue, the request has divided the city into two camps and the matter is getting lots of columns in the Salem newspapers, both pro and con.

On the 43-foot strip which the Oregon company asks to be vacated the company proposes to build a warehouse and addition to the mill which will result

in the employment of some 50 more men. The new addition would cost about \$100,000.

While there is some support in favor of the mill there is nevertheless an active opposition group who became aroused enough to file a remonstrance petition which unquestionably throws some sand in the gears and slows up matters. They protest the giving of property to a private enterprise.

Apparently the Salem mill is accumulatively stirring up a hornet's nest. Recently the city produced a number of citizens who filed objections to the paper mill creating a smoke nuisance. The mill is located only a couple blocks from the business district and the objection was that it was throwing a goodly portion of its fuel out of the stacks thru too much forcing of the boilers and thus sooting up the town and its more immaculate citizens.

Some time further back President F. W. Leadbetter, who also is president of several other paper and pulp mills on the Pacific Coast, including the Columbia River Paper Mills at Vancouver, Washington, made a threat to move the entire Salem mill out of the city and re-establish it at Vancouver. The reason given was that the Salem mill was taxed all out of proportion to taxes assessed on his other properties.

The Neah Bay Breakwater

Now that Congress has approved that a survey be made looking to the establishment of a protective breakwater at Neah Bay, Washington, that far outpost on the Straits of Juan de Fuca, leaders in the movement are planning to call a general meeting of all interested.

Neah Bay has sprung into a new prominence in recent years. It is no longer an isolated Indian trading station. Today it is the haven for several months of the year of a fishing fleet comprising several hundred boats. It is used as a base and its shipping includes not only the small boats actually doing the fishing, but cannery tenders, floating stores and fish warehouses, oil tankers, and tugs.

It is the base of a Coast Guard station. It is a base camp for pulpwood cutting that supplies thousands of cords of wood and chips annually for Puget Sound pulp mills.

Being exposed to the sea and having no contact with the outside world except by water, the need for a breakwater is urgent. Operations now are seriously handicapped seasonally by having no protection. The breakwater is said to be entirely feasible, due to the possibility of constructing it from the mainland to Waddah Island.

An effort now is being made to get in touch with every fisherman, cannery operator, oil distributor, tugboat operator, pulpwood cutter and any other who has an interest in the Neah Bay breakwater. It is proposed to issue invitations to a general meeting at which all interests may be represented in laying their case before the Army Engineers. The leaders are interested in knowing who would attend so as to arrange suitable accommodations for the meeting. If interested, communication should be made with Laurel R. Kemoe, 7305 Eighteenth N.W., Seattle, who is handling the details.

Five Day Week at West Linn and Oregon City

The first sign of a lull in paper production in many years was evident beginning in July when the Hawley and Crown Willamette mills adopted a five-day-week program. The nine machines at West Linn are idle Saturdays and Hawley's four machines are silent Mondays. It is generally understood the five-day schedule is only temporary.

Pacific Coast Pulp To Europe

That an opportunity exists for developing a commerce in wood pulp between the growing industry of the Pacific Coast of America and the consuming centers of Europe, particularly Southern Europe, is apparent in communications received by PACIFIC PULP AND PAPER INDUSTRY from established pulp brokers in London and Paris:

One such communication received says in part:

"After taking careful note of the marketability of pulp from the Pacific Northwest it strikes me that an old and well known organization would be useful as a European distributor to some of the mills in your region which have a surplus of pulp to sell.

"We can dispose both of the highest grades and of the inferior grades. Should any of the producing pulp mills on the Pacific Coast be interested in new outlets for their products among the paper mills, especially in Southern Europe, we would like to hear from them."

The writer states that with samples information is desired on prices, method of baling for overseas shipment, ocean freight rates to such ports as Antwerp, Havre, Bordeaux, Barcelona and Genoa.

With the establishment of direct ocean routes between North Pacific ports and Europe the avenue is paved for an intercontinental pulp traffic.

Detroit Sulphite Executive Visits Coast

Altho he had visited the Pacific Coast a number of times previously, the time had always been spent in California, but this time J. M. Ward, vice president and treasurer of the Detroit Sulphite Pulp & Paper Company, Detroit, Michigan, turned his attention to the Pacific Northwest and combined business and pleasure in witnessing the growing pulp and paper industry in the Douglas Fir region.

Mr. Ward spent an entire week in Longview, Washington, and declared him self as impressed with the facilities offered by that new and thriving port on the Columbia River.

Mr. Ward made no comments about extending his company's activities to the West, but seemed favorably impressed with the Pacific Coast from the standpoint of raw material, transportation, power rates and other factors.

The Detroit Sulphite Pulp and Paper Company operates a 75-ton Mitscherlich pulp and paper mill at Detroit and manufactures a varied line of Sulphite specialty papers.

Pulp Possibilities In the Redwood Empire

Possibilities for the manufacturing of pulp and kraft paper exist in the Redwood Empire section of the northern California coast, believes C. H. Brown, pioneer lumber man of Eureka, California, who, with his son, J. A. Brown, is operating the Eureka Fibre Company at Bucksport, just south of Eureka.

"No wood gives a nicer fibre than the California redwood," says Mr. Brown. "There is plenty of raw material in this lumber industry here, where the waste runs more than 50% and experiments have proven that the redwood pulp can be bleached. It would make a very good grade of kraft paper."

The Eureka Fibre Company is now shredding redwood bark and shipping it out in bales to manufacturers of roofing paper, who mix the shredded redwood with asphalt in the manufacturing of their papers. The redwood opens up the asphalt composition and makes the roof porous, Mr. Brown says.

The Browns buy bark from the split-wood men, or tie makers and run it thru a shredding machine.

LOWER WAGES

An Editorial

Before instituting wage reductions on the plea of declining profits our corporals of industry might

Discard yesterday's economics for the modern which accepts high wages and prosperity as complementary.

Eliminate operating inefficiencies which could be translated into profits.

Survey reserves for excessive altitude and congestion.

Read up on the homely fable of the goose and the golden egg.

Our standard of living, resting upon a wage system which affords some latitude between stark necessities and the conveniences and luxuries, marks the foundation of our prosperity.

If things MUST be tightened it is good business, solely on the argument of horse sense, to turn only as a last resort to taking the slack out of the workman's pants.

Russian Pulpwood Banned—Admitted

Shiploads of pulpwood from Soviet Russia's abundant northern forests, harvested, loaded and shipped under the Soviet regime that finds no comparison with American methods, steamed out of Archangel enroute to pulp mills in the United States.

International Paper Company was an important purchaser.

Followed agitation in pulp and lumber circles. Result, Assistant Secretary of the Treasury Lowman, listening to appeals that the pulpwood be barred because it was produced in whole or in part by convict labor, ordered the ships to be held.

The ban aroused the other side. Big bankers, paper manufacturers, steamship and railroad men, told their tale. Result, the ban was lifted and the pulpwood cleared for unloading.

Further, no future shipments will be barred unless there is inclusive evidence that convict labor had a part in their production. Meanwhile, virgin Pacific Coast forests are butchered, millions of cords of good pulp wood are sacrificed annually, and wood-industry workers have idle time on their hands.

Working On Rice Straw Mill In California

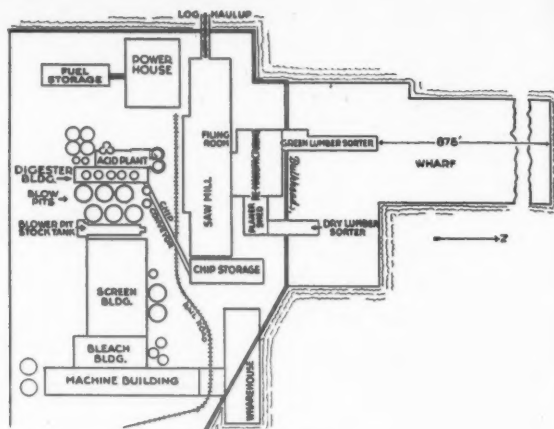
Reports from Richvale, California, indicate that work is progressing on the new 35-ton pulp and paper mill which the Pacific Coast Pulp & Paper Company is building there to manufacture paper from rice straw. Preliminary excavation work began some weeks ago.

The completed plant will represent a total investment of approximately \$550,000, it is said, and will be ready to begin operation about February 15, 1931. The American Engineering Corporation is erecting the buildings. Steel was being erected at last reports.

Joe Hedin Returns East

Joe Hedin, employed for several months as special engineer for the Crown Zellerbach Corporation, resigned July 5 to take a position with an eastern pulp and paper mill, the name of which was not learned. While with the organization Mr. Hedin divided his time between the corporation's many mills.

The New Mill of the Olympic Forest



Ground Plan

Products Company



ENNIS Creek may not show on your map, but it has nevertheless busily been carving out a useful little valley in the centuries it has coursed northward down the Olympic foothills to the Straits of Juan de Fuca and the sea a mile or two east of the thriving little city of Port Angeles, Washington. Some eight miles further west the Elwha river has been long engaged

in rolling gravel into the salt chuck with which Dame Nature has constructed a four-mile-long finger called Ediz Hook, in the shelter of which Port Angeles shipping finds a haven.

When the nation threw its forces into the world conflict in 1917 and the cry went out from the military for airplane spruce the Federal government seized upon the Ennis Creek site and hurriedly built a sawmill. Meanwhile steel was laid some 50 miles to westward to tap the fat spruce forests. Then—but the armistice ended all that. Never a log came out. Never a stick went thru the sawmill. Port Angeles had only an industrial ghost to point to for a dozen years.

In June 1929 E. M. Mills announced that a newly organized company, the Olympic Forest Products Company, stood ready to build a new and modern 175-ton bleached sulphite pulp mill at the Ennis Creek site if the City of Port Angeles would cooperate in the building of an industrial water line. Port Angeles already had a pleasant taste of the steady payrolls of the pulp and paper industry. It had the 60-ton pulp and board mill of Fibreboard Products Inc. Some ten years before it had witnessed the start of what is now the 300-ton news print mill of the Washington Pulp & Paper Corporation. Further, it knew the name of E. M. Mills, for he was president of the news print mill.

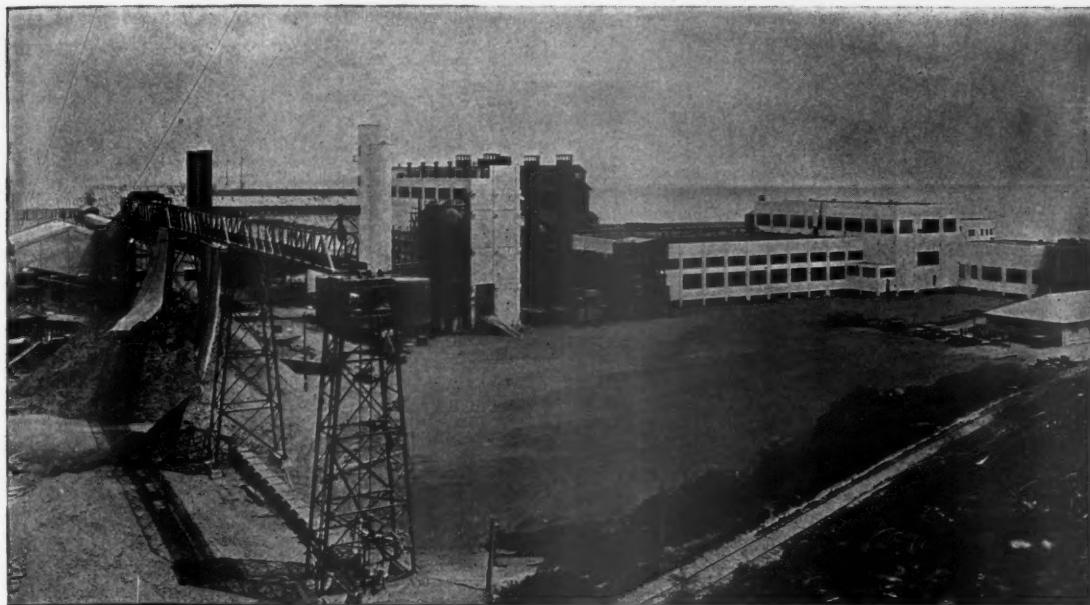
So Port Angeles said "yes", said "yes" twice overwhelmingly, voting with no less enthusiasm a second time when the new company asked that the water line

be increased beyond original estimates to provide for probable future expansion. In short, Port Angeles voted to bond itself for \$800,000 to build an 8-mile industrial water line capable of diverting 100,000,000 gallons of water daily from the Elwha river. The Olympic Forest Products Company made a successful bid for the construction of the pipe line and carried out the job to completion, concurrently with the completion of the pulp mill.

Following the bond election things happened fast. On September 20, Chris Kuppler's Sons, contracting firm that has built a number of pulp and paper mills on the Pacific Coast, was awarded the construction contract. A few days later pile driving began. On November 1 the first concrete was poured. Figure it out for yourself. The mill officially went into production on June 9, 1930, with the blowing of the first digester.

The old buildings of the sawmill and the substructure were partially utilized as a nucleus in building the new mill. The site, consisting of tidelands built up by the creek, lying over a hardpan base, greatly facilitated construction in that it was only necessary to drive short piling for the building foundation. The mill has a 1200-foot wharf, 200 feet wide, which is capable of accommodating any ocean vessel. A bulkhead has been driven around the main buildings and the material brought up by the dredge in deepening the water around the dock has been used to fill in behind the bulkhead to make new land.

The site is sufficiently removed from the business and industrial district of Port Angeles to make it free from smoke and dirt which might prove a hazard in the production of clean pulp. As for transportation, all ocean and intercoastal traffic passing in to Puget Sound or Vancouver, B. C., passes directly by the mill site. The Olympic Division of the Milwaukee Railroad traverses the mill site, while the paved highway for automobile traffic is but half a mile away.



The new 175-ton bleached sulphite pulp mill of the Olympic Forest Products Company.

The brick structure housing the steam and power plant of the old sawmill was remodeled and now houses a modern high pressure steam and power plant which more than serves all the company's requirements. The sawmill has been entirely rebuilt and its layout now conforms to modern ideas. The specific function of the sawmill is dual in nature, to cut lumber for the market and to break down logs for the pulp mill. All of the sawmill buildings are of frame construction as is also the big chip storage building and pulp warehouse. The acid plant and digester buildings are built of steel and concrete and the same type of permanent construction is employed in the screen room, bleachery and machine room.

Acid storage tanks, blow pits and stock chests are of wood stave construction.

Reference to the photographs and skeleton sketch illustrating this mill description will show the relationship of the buildings one to another. It will be noted that the sawmill is conveniently located to draw logs from the water and pass the finished lumber directly to the huge wharf. Refuse from the sawmill is collected and passed to the steam plant or to hogged fuel storage adjoining.

Straight Line

Refined pulp chips make their way on rubber belt conveyors directly to the digester house or to the big chip storage bin at the end of the sawmill.

In the pulp mill proper the process is in straight line. From digesters the stock moves to adjoining blowpits, to stock storage tanks, to screen room, to the bleachery and machine room, turning at right angles at this point to be delivered as finished pulp to a warehouse which is conveniently located for out shipments of pulp either by rail or cargo.

The general aim in constructing the Olympic Forest Products Company's mill has been to provide the best buildings consistent with the required use without indulging in overconstruction. For example, all stock chests have been placed outside and only such units as require housing have been housed.

Several features of the mill are outstanding departures from practice heretofore common on the Pacific Coast. The mill has been specifically designed as a combination lumber and pulp mill, and as such marks another step in what has apparently become a significant industrial trend in the wood-using industries of the West. Complete wood utilization has been effected and not one sliver or grain of sawdust goes to waste. The power plant uses the highest pressure yet installed and in operation in a Pacific Coast pulp or paper mill. The mill is the first in the West to install the Chemipulp Process. It is also the first Coast mill to install a Minton Vacuum dryer.

A few of these leading features of the mill are only mentioned here. A number of them are elaborated upon elsewhere in this issue.

OUTSTANDING FEATURES

of Olympic Forest Products Company's
New Mill

- Completed in eight months.
- Combination lumber and pulp mill.
- Complete wood utilization effected.
- Highest steam pressure in operation in a Pacific Coast pulp mill.
- First Chemipulp installation on Pacific Coast.
- First Minton Vacuum Dryer installation on Coast.
- No chip storage above digesters.
- Situated to draw from the vast timber stands of the Olympics.
- Designed to produce the highest quality grades of bleached sulphite pulp and operated under scientific control to attain that end.

Ross-Wagner Recovery Systems

The **WAGNER FURNACE** For Soda and Sulphate Pulp Mills

NOW IN SERVICE

14 Units In
Five Mills

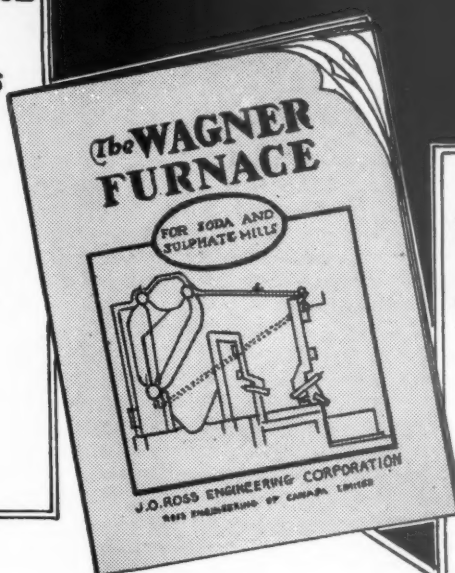
CENTRAL PAPER COMPANY

CANADIAN CELLULOSE CO. LTD.

THE BROWN PAPER MILL CO. INC.

PACIFIC PULP MILL CORP.
(Formerly Union Bag & Paper Power Corp.)

MEAD STRAW PULP COMPANY



ON ORDER
12 Units For
Four Mills

THE BROWN PAPER MILL CO. INC.

NATIONAL PAPER PRODUCTS CO.

BOGALUSA PAPER COMPANY

BROWN CORPORATION

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PULP and LUMBER



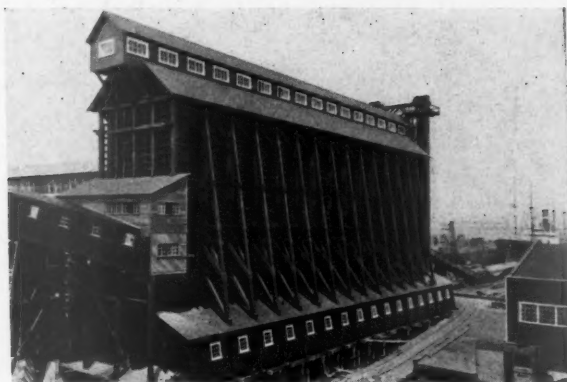
NE ideal held constantly in mind in building the sawmill and wood preparation plant for the new Olympic Forest Products Company plant was to effect as complete utilization of the wood as was consistent with good business practice. In designing such a mill there was little precedent to draw from. There were a number of definite requirements to be met. The

mill was to cut only Western Hemlock. It must be flexible enough to permit the cutting of as much first class lumber from the log as could profitably be sold. It must supply the wood requirements of the pulp mill. A. J. Lustig, sawmill engineer of Seattle, was called in and given practically a free hand in the design and building of the sawmill.

All logs whether intended primarily for lumber or for pulp material are handled the same on the log deck and on the head rig. Fundamentally, beyond the head rig, several conveyor lines have been designed to short cut the route of the several classes of material to the next operation. Slabs, edgings, and inside wood unsuited for first class lumber are slashed to four-foot lengths and all collected upon a single main conveyor leading to the wood room. The sawmill proper includes a planer and a remanufacturing plant equipped with the latest machinery and so designed as to handle a volume output with a minimum of labor. The sawmill unit has a designed capacity of 160,000 feet of lumber every eight hours, but actual operations so far have indicated that the mill will function on a 50% over-capacity, employing only 50 men per eight hour shift. This high efficiency can be attributed largely to complete electrical installations and automatic control.

Wood Preparation

The wood room, where pulp wood is prepared, is located in one end of the sawmill. A main conveyor equipped with steel chain carries all material not turned into lumber past a number of sorting stations where all suitable pulp material is picked out. These pieces, which have all been slashed to a four-foot length, are piled on movable chain tables which are moved forward a notch at a time. A supply of slabs is thus kept ahead of the operators on the several machines which clean the wood prior to chipping. Sheet metal chutes are provided at many convenient locations so that a stick of wood can be dropped to the floor below on the chain conveyor leading to the chippers at any point where cleaning of the individual piece of wood may be finished. Cleaning the wood is accomplished in several steps by means of bolters, saws, knotters and barkers, the arrangement being such that the pieces of wood



The chip storage bin is at ground level

travel only so far thru the wood mill as cleaning each piece may dictate.

Design of the wood room was largely under the supervision of the Webster-Brinkley Company of Seattle, and generally follows the design used by this company in a number of other Pacific Coast installations. All refuse from the chipping plant, together with that from the sawmill, is routed to two Huffman hogs which prepare it for fuel.

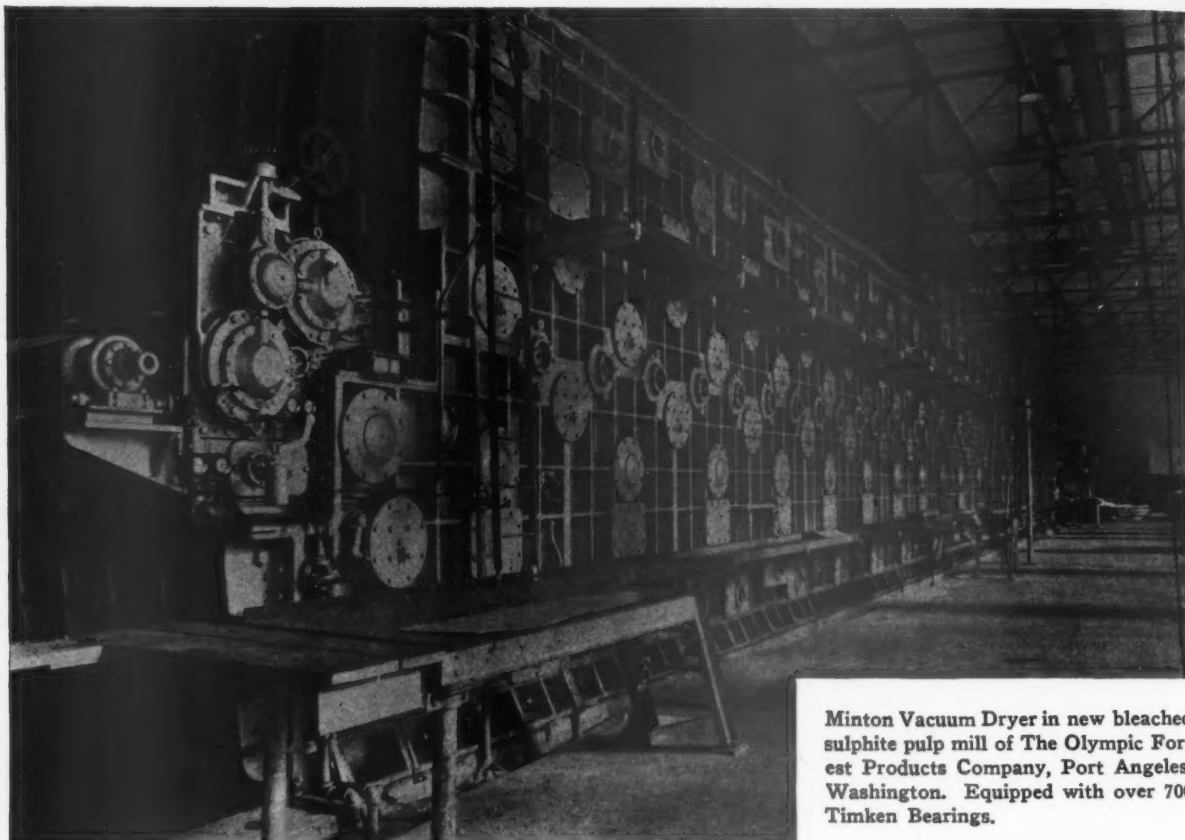
All accepted clean pulp wood is delivered by steel chain conveyors to several Carthage chippers of different sizes, from which point the wood travels as raw chips on rubber belt conveyors to a battery of nine Leahy inclined vibrating screens to be refined. Westinghouse motors drive the chippers thru Dayton Cog-Belt drives, a combination which is used extensively thruout the mill. Merrick Weightometers are installed on rubber belt conveyors to weigh both accepted chips and hogged fuel en route.

Chip Storage

The chip storage bin is an interesting deviation from current practice. Instead of placing the storage above the digesters as a part of that building, the company has erected a huge frame structure storage building adjacent to the sawmill and wood room at ground level. This bin, capable of storing 1200 units—each of 200 cubic feet—of chips, is 92 feet high, 54 feet wide and 170 feet long. This storage building is of heavy mill type construction. The interior is lined with hard maple flooring and has an inverted "V" bottom so that chips will readily slide out to either side without handling. There is a loading alley at each side of the bin thru which runs a rubber conveyor belt. A series of doors in the bottom of the bin permits chips to be drawn from any part of the bin. Loading hoppers straddle the conveyors and can be moved under any desired door.

In practice the chips are conveyed automatically to the top of the bin, there to be distributed as required. One end of this big bin is occupied by a smaller service bin from which chips are drawn to the digesters. Chips are fed from the service bin into a flat conveyor by rotary feeders and from the flat conveyor to the inclined conveyor going to the digester building. From the inclined conveyor the chips are dumped on another horizontal conveyor over the digesters and thru a movable dumper into the digesters.

On the dock opposite the chip storage bin an unloading hopper and conveyor belt to storage permits the mill to draw chips from scows coming from outside chip sources if necessary.



Minton Vacuum Dryer in new bleached sulphite pulp mill of The Olympic Forest Products Company, Port Angeles, Washington. Equipped with over 700 Timken Bearings.

700 Timken Bearings In This Minton Vacuum Dryer

The Minton Vacuum Dryer illustrated above, forms part of the new bleached sulphite pulp machine installed in the new pulp mill of The Olympic Forest Products Company, Port Angeles, Washington.

It was designed by the Minton Vacuum Dryer Corporation, Greenwich, Conn., and built by Rice, Barton and Fales, Inc., Worcester, Mass., who engineered and installed the complete machine. It has a capacity of 170 tons of pulp per day.

All of the dryer and felt-rolls are mounted on Timken Bearings, a total of 700 being

used, exclusive of those in the Dodge-Timken Pillow Blocks which support the drive shafts.

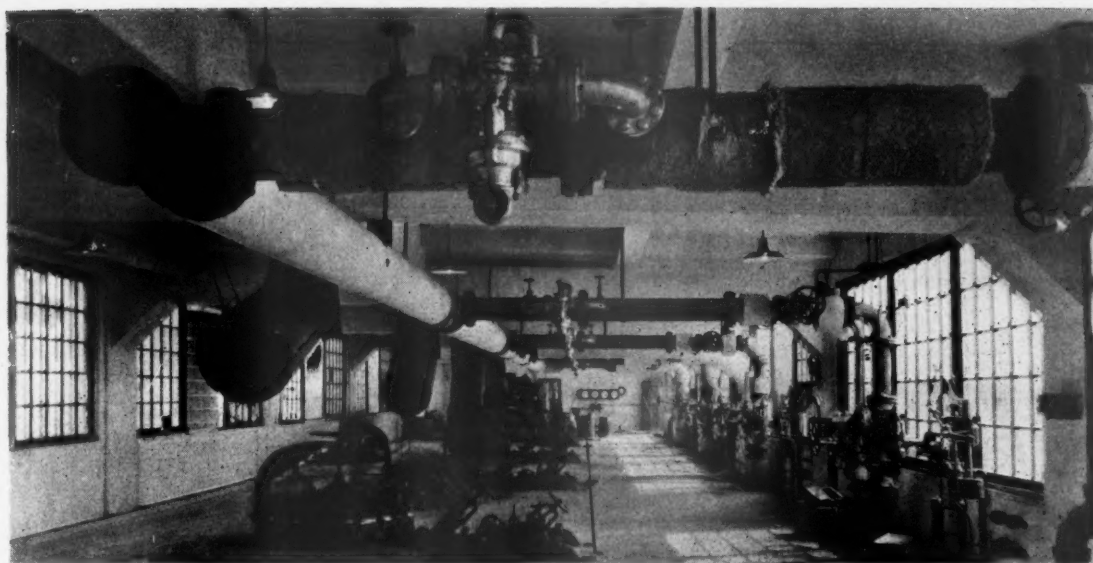
In addition, the fourdrinier and press section of this pulp machine are completely Timken Bearing Equipped, as also are the Westinghouse-Nuttall Speed Reducers through which the main drive is taken.

The entire machine is thus thoroughly protected against friction, lubrication troubles, misalignment and thrust-radial loads, with many extra years of economical service assured.

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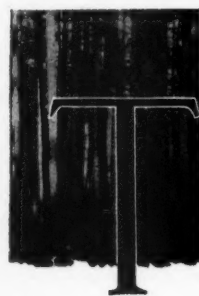


A view of the charging floor in the digester building of the Olympic Forest Products Company's sulphite mill

Olympic Forest Products Company

first to install Chemipulp Process for

Cooking Western Woods



HE heart of any pulp mill is the digester plant where the wood chips are cooked. While Pacific Coast sulphite installations of recent years have a great similarity, the Olympic Forest Products Company's method of cooking is differentiated in that it is the first Pacific Coast mill to install the Chemipulp process. Altho the process has demonstrated its feasibility in other parts of the continent it fills a pioneer role at the Port

Angeles mill because it will be the first to operate on Western woods.

The acid plant is the standard Jenssen two-tower system equipped with two Glens Falls burners with sulphur melting pots heated partially from steam coils on the bottom and partially from the hot burner. From the burner room proper the gas passes into a Jenssen cooler outdoors and from there into the acid absorption system. The older type Jenssen systems used seals and covers for their gas outlet and return at the top of the towers, but the Port Angeles installation uses lead plug cocks.

From the acid plant the acid goes to a reclaimer tank which is run in conjunction with the Chemipulp system and overflows from the reclaimer tank to three wooden storage tanks from which the acid is pumped to the accumulators.

The digester building is a concrete and steel structure

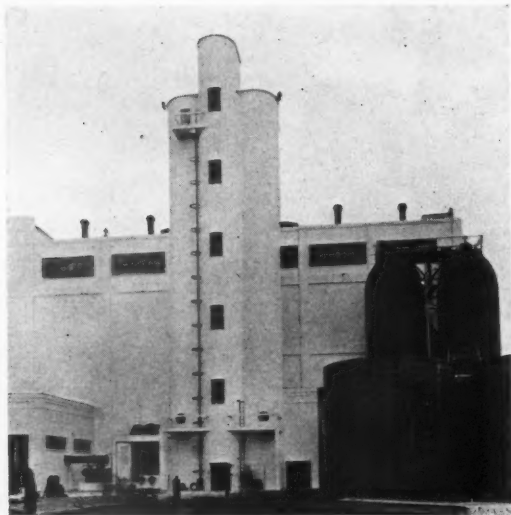
of less altitude than customary, a feature made possible by divorcing chip storage from the digester building and placing it at ground level. Removal of chip storage from the usual position above the digesters has accomplished a number of beneficial things, chief of which is conservation of building investment.

Cooking is carried on in five 15 x 56-foot digesters built by the Commercial Boiler Works of Seattle and fitted with standard 7½-inch Stebbins lining. Doran Company of Seattle supplied bronze valves and fittings for digester, accumulator and acid tank hook-ups.

In cooking, with the digester full of chips and the cover bolted down, acid is pumped into the bottom from the accumulators. During this pumping the digester is vented to the open air, but as soon as the odor of sulphur dioxide is noticed in the room the vent is closed and thereafter the digester is vented to the reclaimer tank. Pumping is continued until the digester is completely full of acid. All the relief from the several digesters goes into a 6-inch header leading to the bottom of the two accumulators. There is also a 4-inch header where it is possible to relieve at a lower pressure into the reclaimer tank. Any over gas from the reclaimer tank is taken to the suction side of the fan in the acid plant.

In brief, the Chemipulp Process covers a means of recovering waste heat and absorbing sulphur dioxide, under pressure, while same is being relieved from digesters during cooking time.

The equipment at Port Angeles consists of two pres-



Chemipulp Process used in conjunction with Jensen acid towers

sure vessels, commonly known as acid accumulators, into which a suitable amount of acid has been charged. The relief from the digesters is conducted into the pool of liquor in accumulators where, by proper distribution of gases, absorption readily takes place. The gases from digesters can also be conducted thru proper conduits and eductors into a constantly counter current flowing stream of fresh or partially prepared liquor.

It has been found with the Chemipulp method of recovery that the cooking or storage acid can be heated to a temperature of at least 90° C. when pressure on digesters is down down to 20 pounds per square inch at time of blowing. The pressure in the accumulators during the cooking time remains always considerably below the pressure in the digesters from which the gases are forced over, thereby minimizing the back pressure or resistance against a free relief.

The Chemipulp Process is generally regarded as the most radical departure from the generally accepted, standard method of operation, which has been introduced to the industry since the early inception of the art of sulphite manufacture. No coolers are used. The old theory of the necessity of cooling relief gases has been reversed.

T. L. Dunbar, president of the Chemipulp Process, Inc., who personally supervised initial operations of the process at Port Angeles, states that, "Chemists and research men the world over have accepted the new idea as being entirely practical and generally beneficial, from all angles. Penetration of the chips is rapidly increased, thereby avoiding the dilution of highly concentrated acid at a time when acid strength is all important for uniform delignification. With better penetrations comes more uniform operation, with a resultant saving in chemicals, raw material and a noticeable improvement in fibre characteristics.

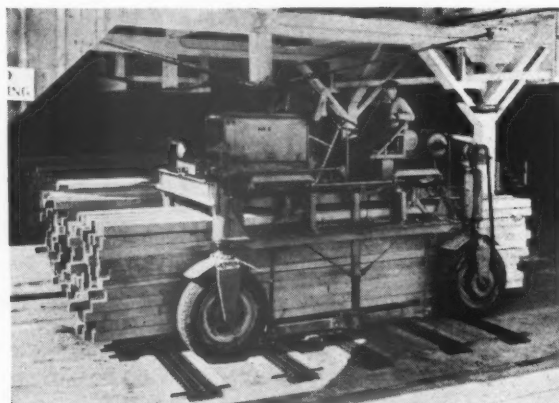
"Indications are that the Chemipulp Process will fit particularly well into operating conditions on the West Coast, due to the high moisture content of the wood, much of which is slabs and edgings, thoroly saturated with sap or the natural wood-growing juices. Reduction in steam condensation in the digesters reduces by about 12% the amount of liquor relieved from the digesters, in which is entrained a high percentage of deleterious matter, but which also contains valuable chemicals."

MATERIAL HANDLING

at Olympic Forest Products Company

LUMBER, pulp in bales, lime rock, and sulphur are the four commodities which must be handled in volume at the new Port Angeles mill. In contrast to a number of other Pacific Coast installations the Olympic Forest Products Company has departed from the overhead method to confine itself to several comparatively small flexible speedy units operating on the ground. In a normal operating day the mill must handle more than 200,000 feet of lumber, 175 tons of finished pulp in bales, lime rock and sulphur sufficient for that quantity of pulp in manufacture.

In the handling of materials, the same careful attention in design has been given to effect efficiency. The company's great ocean wharf, capable of storing some 12,000,000 feet of lumber, provides ample working space for handling all commodities inbound or outbound. The largest piece of equipment on the dock is a 7½-ton hammerhead crane used to stack lumber to a 30-foot height and to load vessels. In addition the dock includes among its less flexible equipment two 25-ton cranes, one a revolving type and the other locomotive crane. These units are used largely for unloading hogged fuel, sulphur and lime rock from ship side. The fuel is dumped directly into a hopper to be carried



These pneumatic-tired carriers straddle the load, lift it, and roll away in a matter of seconds. While long used in Pacific Coast lumber mills, at the Olympic Forest Products Company they are used for the first time for pulp, sulphur and lime rock as well as lumber.

by chain and belt conveyors to the boiler house or fuel storage. Lime rock and sulphur are loaded on special sleds and handled in unit loads of about 5 tons each.

Perhaps the two most mobile pieces of equipment in the entire plant are the two Willamette-Ersted carriers, or "straddle bugs" as they are sometimes called. Common for some years in the lumber industry, the pulp industry has heretofore made little or no use of them. These carriers can drive over a load of 6 to 10 tons, pick it up in a few seconds and whisk it way in either forward or reverse speed at 16 or miles per hour. They are fitted with pneumatic tires in contrast to the solid tire equipment which is virtually a standard in the lumber industry. Pneumatic tires, in addition to relieving the machine of road shocks, give the carriers access



General view of the screen room in the Olympic Forest Products Company's bleached sulphite pulp mill

to the pulp warehouse which is fitted with a hard maple floor. The carriers handle equally well lumber, pulp bales on skid platforms, and sulphur and lime rock on sleds.

In the machine room and pulp warehouses several Elwell-Parker electric trucks are used. The finished pulp is baled under two hydraulic presses at the end of the drying machine and the bales are lifted to skid platforms by means of an overhead hand-operated electric crane. An Elwell-Parker truck with lift platform wheels the platforms away to the warehouse or directly to cars which can be spotted between machine room and warehouse. In the warehouse Elwell-Parker derrick type trucks are used to pile the pulp bales.

SCREEN ROOM

REFINING the pulp, or that part of the process between digesters and bleachery, is executed with equipment exhibiting a number of features. Wood, for example, has played an important part in design. The acid storage tanks, the blowpits and stock storage tanks are wood stave construction and all are located outdoors. In addition, wood pipe of several dimensions is employed extensively thruout the mill for handling slush pulp. The non-corrosive features of wood are an important asset in the production of clean pulp. The pipe is wire wound and reinforced longitudinally with steel rods.

The several blowpits, situated between the digester and screen buildings, have wood vomit stacks. The use of perforated Allegheny metal drainer bottoms in the blowpits, supplied by the Nortmann-Duffke Company of Milwaukee, is perhaps an innovation on the Coast. An-

other departure is found in the method of washing the pulp in the blowpits. This is accomplished by a system of perforated vertical lead spray pipes. Stock is washed out of the blowpits by a centrally located monitor.

The stock is then pumped to two couch deckers where the consistency is raised to a uniform 6%, going then to a horizontal wood stave storage tank located next to the blowpits. From this storage the stock is diluted to 3½% and pumped to the service box on the knotter screens.

The screen room, bleach plant, and machine comprise an integral set of buildings, each of which is of first class construction and well lighted and specially adapted for its purpose. The buildings have steel truss roofs covered with wood planking.

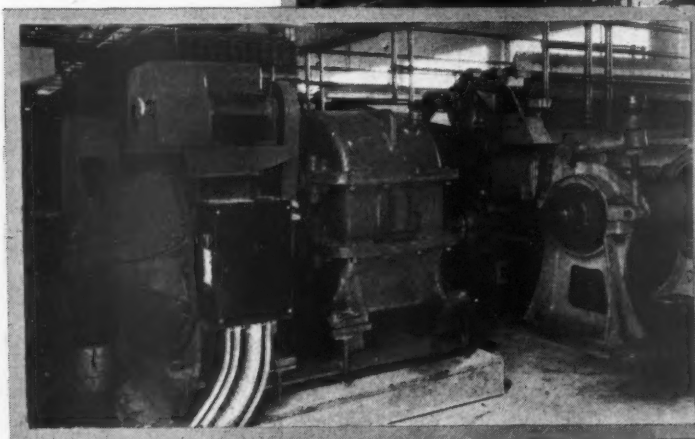
There are no rotary screens in the mill. All refining is carried out on a total of 56 flat screens manufactured by the Appleton Machine Company. The knotter screens are in two lines of four screens each and are fitted with .040-inch plates. The knotters are mounted on a mezzanine slightly above the rifflers and other screens. Room has been provided on this mezzanine for additional screens.

Stock flows from the knotters to the rifflers, the upper end of which have baffles and the lower end of which are covered with a cotton nap felt. After the rifflers the stock is further diluted with white water and then passes over 12 lines of four 14-plate screens to the line.

In operation the flat screens are run in series, that is, the rejects from the first ten lines of screens are pumped to the upper end of the two lines. The accepted stock from these two lines of screens goes back to the blow pit storage tank. The accepted stock from the first ten lines of screens goes to couch deckers where it is raised to a consistency of approximately 3.75% and from there it goes thru a consistency regulator to the first stage bleachers.

From **START** to *The New Olympic* **Electrified**

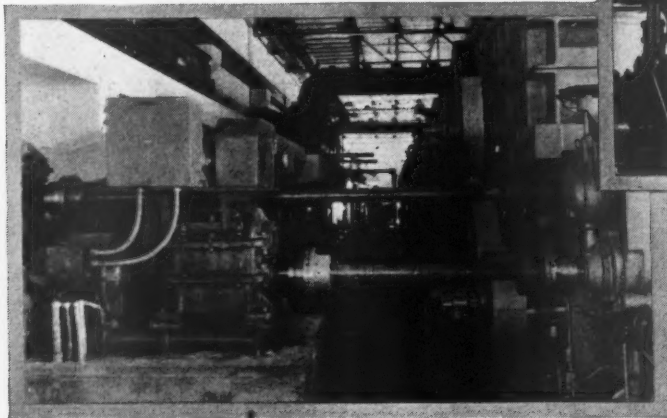
Wet end of 156-inch pulp machine equipped with Westinghouse Sectional Paper Machine Drive



Westinghouse 75 hp. Motor, the new Sectional Speed Regulator and Westinghouse-Nuttall Speed Reducer, mounted on common bedplate, driving couch.



5 Westinghouse Motors driving agitators in bleaching plant.



12 hp. Westinghouse Motors, connected with Westinghouse-Nuttall Speed Reducers, driving seal rolls in Minton Vacuum Dryer

FINISH—

Forest Products Plant

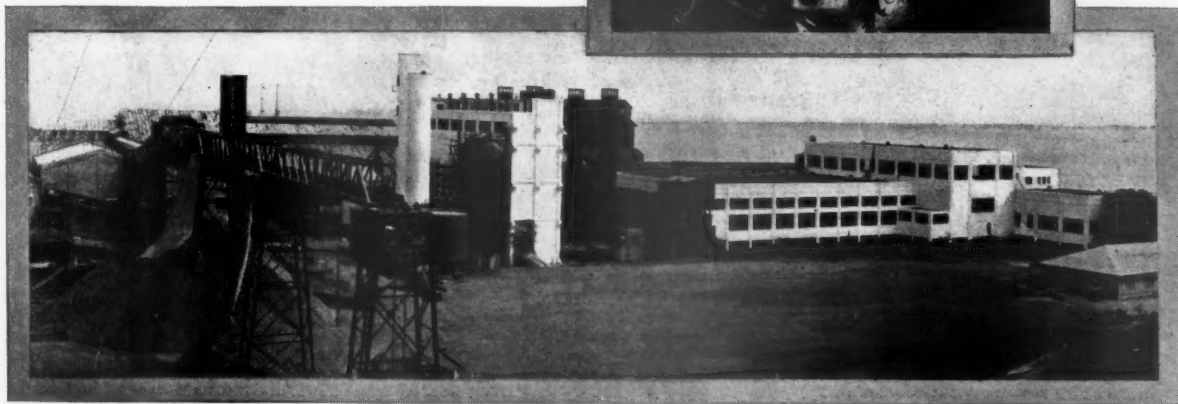
by WESTINGHOUSE

From log through sawmill to finished pulp and ready to ship, in the Pacific Northwest's most modern plant, Westinghouse Motors and Control are an important factor in every operation.

In the Olympic Forest Products' new machine room the demand for compactness, ease of control and installation, low maintenance and operating costs, accessibility and dependability were obtained through their selection of Westinghouse sectional paper machine drive and the new sectional speed regulator.

The experience and knowledge gained through many years of close contact with the industry enables Westinghouse paper mill engineers to suggest the correct selection and application of equipment to meet any paper mill problem.

Chipping Plant showing Westinghouse Sealed Sleeve Bearing Motor powering conveyor and two smaller Westinghouse Motors on barkers.

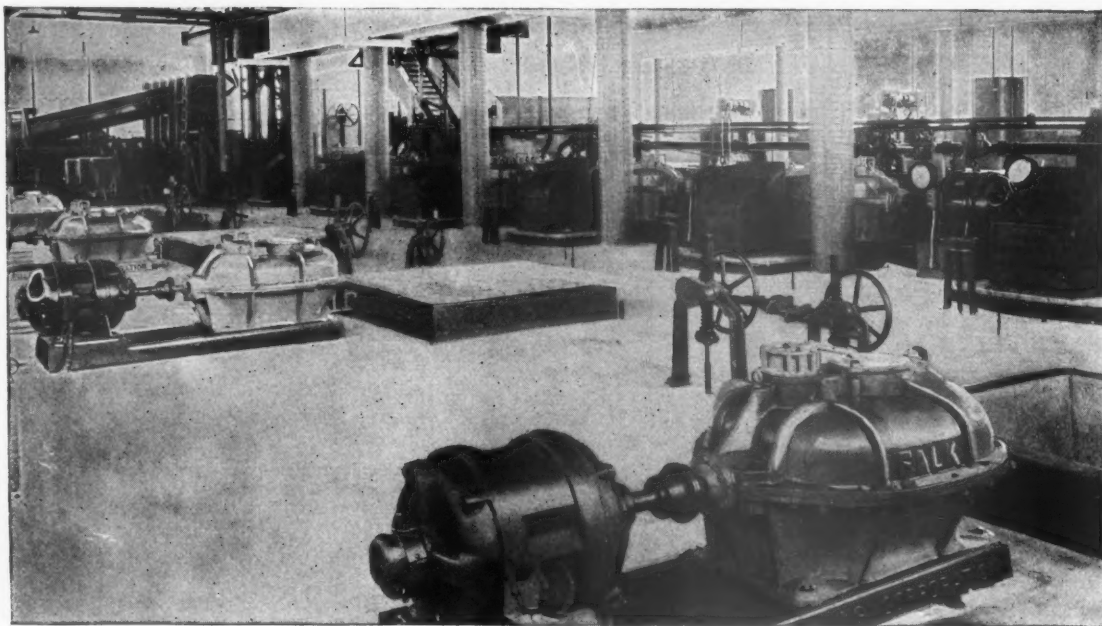


General view of the Olympic Forest Products Bleached Sulphite Pulp Mill at Port Angeles, Washington

Service, prompt and efficient, by a coast-to-coast chain of well-equipped shops

Westinghouse





Olympic Forest Products Company has a two-stage bleach system with an ultimate capacity of 180 tons daily

The Bleach Plant

Its design and operation explained

By R. B. WOLF, President
Pulp Bleaching Corporation

THE two-stage bleaching system installed in the Olympic Forest Products Company's mill by the Pulp Bleaching Corporation, New York, differs from other Pacific Coast installations made by this concern in that the first stage is accomplished at low consistency and the second stage at high consistency.

Previous to this new development both stages were accomplished at high consistency. The advantages of doing the preliminary bleaching at low consistency are:

1—A reduction in total investment, as pulp needs to be brought to high consistency but once.

2—More uniform bleaching in the first stage as the low concentration (approximately 3½% air dry) retards the bleaching action, which is extremely rapid when the chlorine is first added to the unbleached pulp.

3—By bleaching at low consistency in the first stage a rapid and even distribution of the bleach with respect to the fiber is accomplished in the time available. High consistency in the second stage shortens the time required to bleach out the final color residues and the mechanical movement of the high consistency stock in the circulation process brings about an effective exchange of bleach liquor and fiber with the result that shives and fiber bundles are thoroly penetrated and bleached and no unbleached fiber can remain in the final product.

4—Bleaching in both stages is accomplished at low temperatures, that is, without the application of external heat.

At the Port Angeles mill the first-stage bleachers are of the tubular agitator type 16 feet in diameter by 32 feet high, the pulp being circulated by a three-bladed propeller. The second-stage bleachers are 11 feet in diameter by 20 feet high and the pulp is propelled in them by a vertical screw conveyor.

Because of the relative consistencies of the first and second stages—3½% and 18% respectively—bleaching units in each stage hold the same quantity of air dried pulp, viz., 6½ tons. This permits a bleachability test to be made before chlorine is added to the first stage, and because a complete first stage unit is transferred in toto to a second-stage unit variations in bleachability can be compensated for readily.

With first-stage bleaching accomplished the pulp is washed over a three-effect Wolf-Hill washer and discharged at 10% consistency into three Voith concentrators where the consistency is raised to 25% air dry. It is then conveyed by a twin-screw mixing conveyor to the second-stage high consistency bleachers, the chlorine necessary to complete the bleaching operation being added to the conveyor as it discharges from the Voith concentrators, thus reducing the consistency in the bleachers.

Second-stage bleaching requires about 3½ hours at a temperature ranging between 75° and 85° F.

With second and final stage bleaching completed the pulp is dropped into a storage chest below where it is

diluted to approximately 3%. From this chest it is pumped to a four-effect Wolf-Hill washer, where the final decomposition products are removed and the pulp discharged into the finished bleached stock chest.

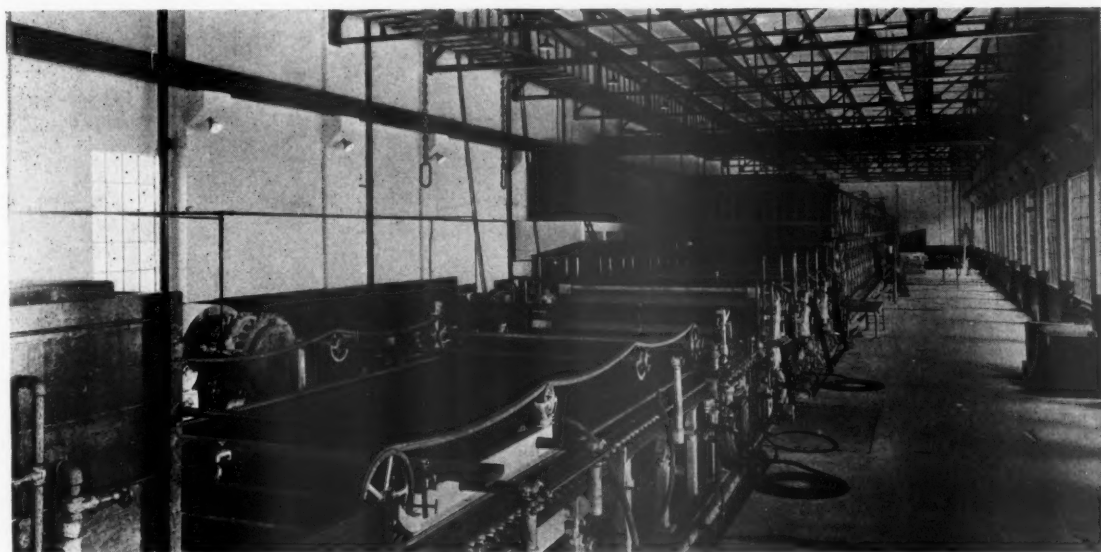
Another "first" Pacific Coast installation is found in the Wolf-Hill washers manufactured by the Pulp Bleaching Corporation and installed in the Olympic Forst Products Company's mill. These washers permit the use of multiple effect washing so necessary to the proper removal of decomposition products of a colloidal nature, without the use of excessive amounts of wash water. This is accomplished by a special design of cylinder mould and multiple series of intermediate agitators which make it possible to have the stock enter the vat from 2% to 4% consistency, depending upon the production required.

The pulp is pumped into the first-stage bleaching units directly from the deckers in the screen room. There are four of these units of 6,000 cubic feet each, providing for ample storage of pulp between screens and bleach plant. The pulp is pumped directly from the second-stage bleachers to the intermediate washers.

The ultimate capacity of the bleach plant is 180 tons of pulp per day.

After final bleaching the pulp is run over long felt riffles, thickened and pumped to the blending tanks ahead of the Minton dryer.

Author's Note—For a complete description of the principles involved in the bleaching process the reader is referred to an article entitled "Comments on Bleaching of Wood Pulp" by Raymond S. Hatch, technical director, International Bleaching Corporation, published in the TAPPI section of Paper Trade Journal, October 31, 1929.



Showing the full length of the machine room from the wet end at the Olympic Forest Products Company mill

Baling the Pulp

Quick and positive action is a necessary qualification of presses used to bale the finished pulp. Further, to compress within 51 cubic feet per ton to secure benefits of minimum ocean rates, requires a press of capacity.

At the new Olympic Forest Products Company's mill two Southwark Foundry & Machine Company presses do the job. Pulp is cut into sheets, weighed into bundles of 450 pounds, wrapped in a sulphite wrapper and pressed into bundles well within the minimum. The two presses have a rated capacity of 450 tons each and can bale 25 tons of pulp per hour each.

To secure speed it is necessary to make a complete open and close within one minute. Several features aimed at securing this speedy operation have been incorporated. The press closes from top to bottom to maintain a fixed working table, for moving pulp bundles on and off press from and to conveyors. A new Hylo pump unit consisting of 40 h.p. motor connected to 200-lb. pressure centrifugal pump, constituting the low stage, delivers the water directly to the press and thus close it quickly against the bale. When the plunger can no longer travel on the 200-lb. pressure

an automatic valve opens and the 200-lb. stream enters a reciprocating plunger pump and the pressure is stepped up to 2,500 pounds per square inch to accomplish the high pressure work in the press. The arrangement definitely fixes the 2,500-lb. limit and the press is automatically held at this point when reached.

The advantages of this Southwark press are that only one valve needs to be opened to start the press and that the high and low stages operate automatically.

The Laboratory Is Important

An important part of the new Olympic Forest Products Company mill is the laboratory. In keeping with the high grade product which the mill is designed to produce the laboratory has been equipped to keep a close control on pulp production. Several rooms have been provided adjacent to the bleach plant just over the machine room. Here the control chemists will conduct routine tests, outline production control, and conduct research. A constant humidity room is provided for carrying on tests under unvarying atmospheric conditions. A separate room is given to research problems. Offices are provided for the staff men.

Some Advantages and Economies

concerning the method of

Drying Pulp in a Vacuum

A Practical Discussion

By J. E. GOODWILLIE

Research Engineer

Minton Vacuum Dryer Corporation



REAT as the advances have been in recent decades in the application of science and mechanics to the manufacture of pulp and paper, comparatively little control has been secured over one element which plays an important part in the manufacturing process, namely the atmosphere. Technical control of operations, rapidly growing

in popularity, presumes the application of a close gauge on all ingredients and factors entering into the manufacture. Such control is not complete if anything is overlooked. Essentially, the Minton Vacuum Dryer was designed to effect that atmospheric control, while at the same time capitalizing on the several economies and advantages resulting from the control.

While the Minton Vacuum Dryer installed in the new 175-ton bleached sulphite pulp mill of the Olympic Forest Products Company at Port Angeles, Washington, is the first on the Pacific Coast, it is the third machine to be built by this organization and its Canadian affiliates for pulp drying. To date a total of 11 vacuum dryers have been built, covering a wide range of applications.

The Port Angeles machine includes a fourdrinier wet end having suction couch, one suction press, and two plain presses. The dry end of the machine is a Minton Vacuum Dryer with forty 5-foot dryers of 152 inches face. The pulp sheet passes directly from dryer to layboy. Both wet end and dryer are fitted with electric sectionalized drives. The assembly is capable of producing at least 200 tons of dried pulp daily.

This article principally concerns itself with a discussion of operating principles of the vacuum dryer, comparative costs, effect of vacuum drying on the pulp fibre, and possibilities in freight saving.

The Minton Vacuum Dryer is used in conjunction with any standard wet end, and insofar as the use of dryer cylinders, felts, etc., is concerned, it is similar in construction to the older open machines used for drying newsprint, fine paper and other commodities. Certain improvements have been introduced, however, resulting in low power requirement and ease of operation.

For example, all of the dryer cylinders are mounted on anti-friction roller bearings carried in a housing built integral with the side frames of the machine casing. Use of these improved bearings, and the fine

alignment preserved by the substantial construction of the entire machine have demonstrated the Minton Dryer can be operated continuously with a minimum of vibration and wear. The front dryer bearings are completely inclosed; the back bearings are covered by sealing glands thru which the hollow dryer shafts pass. These glands are oil sealed in such a manner that air leakage into the casing is prevented and at the same time there is practically no frictional drag on the shaft. The necessary provision for driving the dryers, supplying steam, and removing condensate and air are at the back of machine as indicated. These arrangements are practically identical with those that have been used for the older open dryers.

The Minton Vacuum Dryer as built for pulp drying is equipped with dryer felts. The use of felts assists in maintaining good contact with the dryer cylinders and in this way insures rapid evaporation of moisture from the sheet. Also, the use of felts, together with other features of the dryer design, make the passing of the sheet thru the machine upon starting up an easy operation, saving time and labor. Due to the low temperatures prevailing in the vacuum dryer and to the absence of moisture, a much longer felt life is secured.

The ingoing and outgoing seal construction is the result of a long period of painstaking development and is a truly notable engineering achievement. The seals pass the sheet of pulp into and out of the vacuum chamber with a minimum leakage of atmospheric air into the machine casing.

Figure 3 is an enlarged cross section at the entering seal. There are two bronze covered and one rubber covered rolls. An air-tight seal is made between the bronze covered rolls and the machine casing by rubber cross strips held against the surfaces of the rolls by rubber tubes in the bottom of the cross strip retaining slots. A pressure, approximately five pounds, is maintained in these tubes. A small reservoir of water is held on the atmospheric side of the cross strips and there is a slight water leakage past the strips into the vacuum chamber.

This leakage lubricates the surfaces, in much the same manner that water lubricates rubber glands and

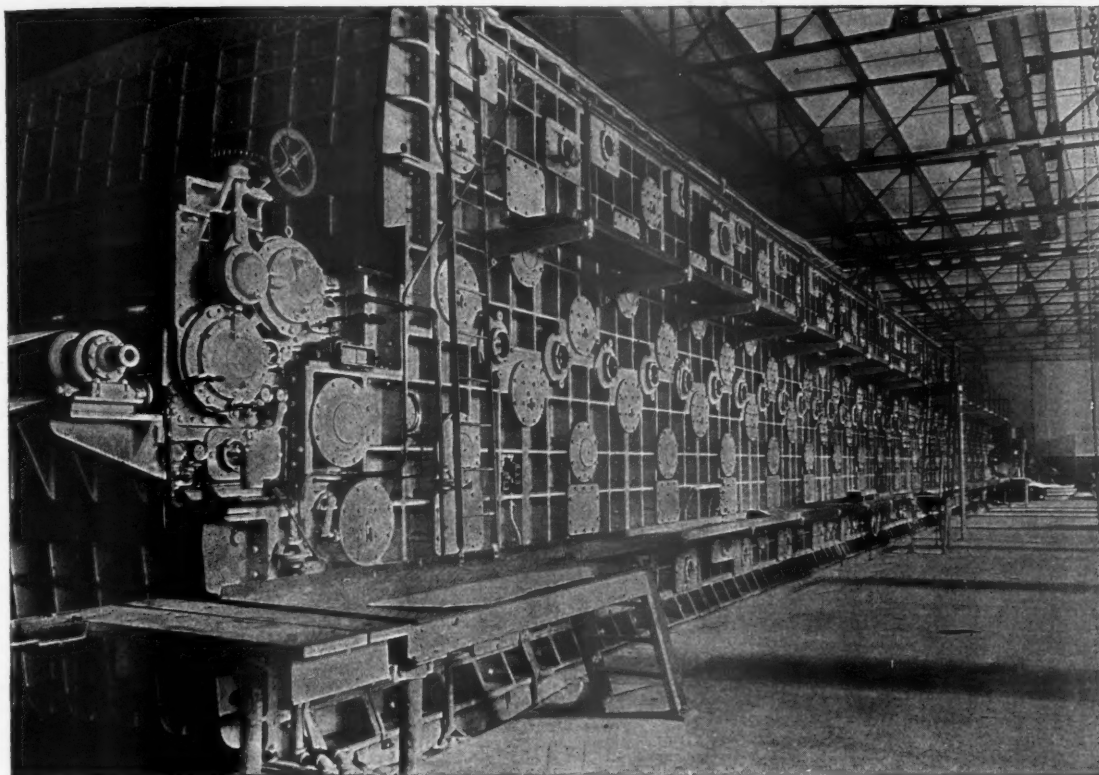


Figure 1—Showing the Minton Vacuum Dryer installed in the machine room of the Olympic Forest Products Company.

bearings on water turbines and ship propeller shafts, reducing the frictional drag on the roll to a minimum. Water leakage is removed by the condensate pump serving the condenser equipment. Secondary cross strips also bear on these rolls, acting as wipers, and remove all water. Atmospheric air cannot leak past these cross seals because they are completely water sealed. The rubber covered roll is drawn to a firm seat on the bronze covered rolls by the pull of the vacuum and effectively seals the gap between the two bronze covered rolls.

All three rolls have rings of special material bearing against their ends and also sealing against the inside surface of the end frames. This same type of seal, with minor modifications to suit particular conditions, is in operation on Minton Dryers in a wide range of applications, on wide and narrow machines, at high and low speeds. Under continuous operation for long periods of time, it has proved to be rugged and dependable.

Vacuum drying is characterized by low temperatures. In the Minton Vacuum Dryer, vacuums of from 27.5 to 28.5 inches are maintained, depending upon requirements, and there is practically no air present in the casing. This means that the moisture in the sheet being dried is liberated at temperatures of from 90 to 110 degrees Fahrenheit. In contrast to this, the older open dryer evaporates the water at about 180 degrees, the exact temperature depending upon atmospheric conditions and the amount of air drawn or blown thru the machine. Because of the low evaporation temperature in the vacuum dryer, the rate of heat flow from the steam in the dryer cylinder to the water in the sheet is about 100% greater than that for the open dryer.

In other words, at least twice as much water can be evaporated per dryer cylinder.

Another consideration in this connection is that about 98% of the heat supplied the vacuum dryer is effectively used in evaporating and removing moisture from the sheet. In the case of the open dryer, it is well known that the removal of water is accomplished by the currents of air passing through the machine. This air must be raised by the expenditure of heat from the temperature prevailing in the atmosphere outside the machine room to that of the vapor discharged from the machine. A large loss of heat is unavoidable with this system, which is partially recoverable only if large, expensive economizers are installed.

As previously mentioned, the installation of a Minton Vacuum Dryer does not change the process of paper making. It takes its place in the production line without affecting the other working units. Its use, however, makes several important improvements possible in the machine room. Since the vacuum dryer evaporates twice as much water from the sheet per dryer cylinder, only one-half the number of cylinders required by an open machine are necessary to dry a given amount of paper or pulp. The dryer is, therefore, about one-half the length of the older machine and a considerable reduction in the length and consequently in the cost of the machine room building and building property is possible. Also, as the Minton Vacuum Dryer is completely inclosed, no hood is necessary and, of course, no economizer, fans, or air ducts. The machine room roof may be of ordinary construction and there will be no rotting as is the case when open dryers are installed under a roof made of ordinary building materials.

Due to the absence of hot vapors, working conditions

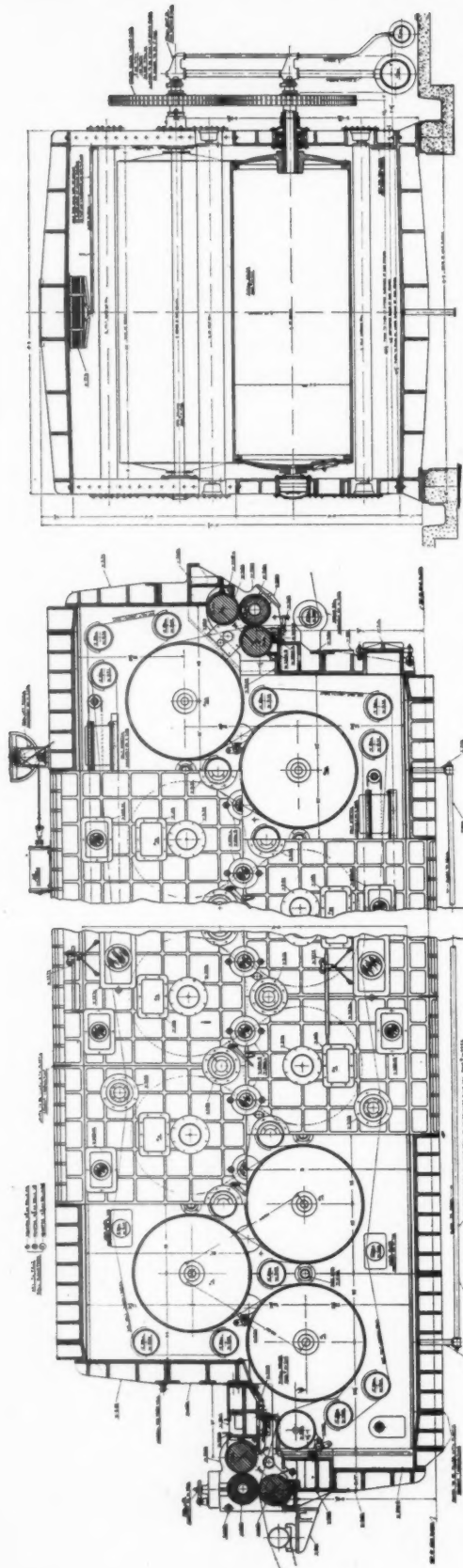


Figure 2—Partial side elevation and cross section of Minton Vacuum Dryer.

in the machine room are greatly improved, an improvement only fully appreciated by men who have worked under both conditions. Also, the passing of paper or pulp thru the machine is greatly facilitated by the vacuum existing in the casing—the vapor is much less dense than the atmospheric air in an open machine (a cubic foot of vapor under the vacuum has less than one-tenth the weight of a cubic foot of air and vapor in an open dryer) and the "air resistance" is consequently negligible.

At the higher machine speeds the momentum of the sheet carries it across the passes without assistance of any kind. At the lower speeds a piece of cardboard, called a "go devil" is used. Certain kinds of pulp come to the dryer in an extremely "tender" condition, but this has been no obstacle. Machine tenders readily pass the steamer thru the machine at full operating speed. The ease with which the Minton Vacuum

(Turn to page 57)

HOW THE VACUUM DRYER FUNCTIONS

A photograph of the dryer as installed in the machine room of the Olympic Forest Products Company at Port Angeles is reproduced in Figure 1. A partial side elevation and a cross section of the machine are shown in Figure 2. Pulp from the last wet press is carried on a felt to the ingoing seal rolls at the left. It passes through the seal into the dryer chamber, as indicated, and follows through the machine over the dryer cylinders, being held in contact with their surfaces by felts. At the right the dried sheet of pulp passes through the outgoing seal on its way to the reel or lay-boy. The chief difference between the vacuum drying machine and the older open dryers is that here the cylinders are completely inclosed in a cast-iron shell or casing, as shown, and that in operation a high vacuum is maintained in this casing by suitable condenser and vacuum pump equipment, not shown in the illustrations. Figure 3 shows an enlarged cross section of the ingoing seal.

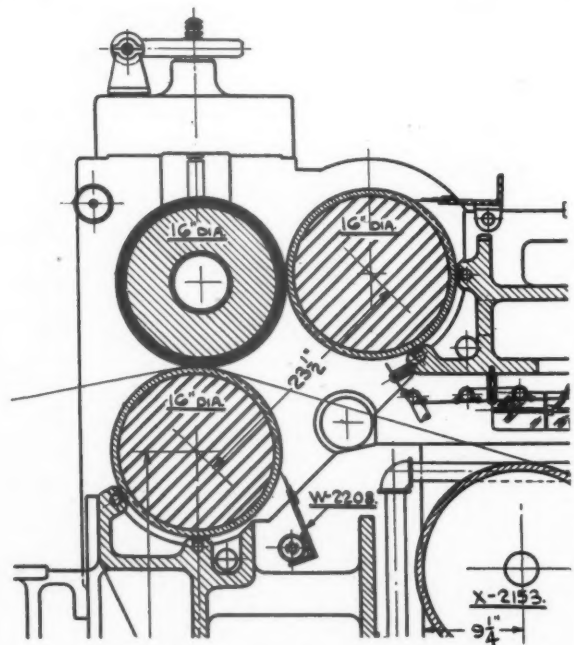
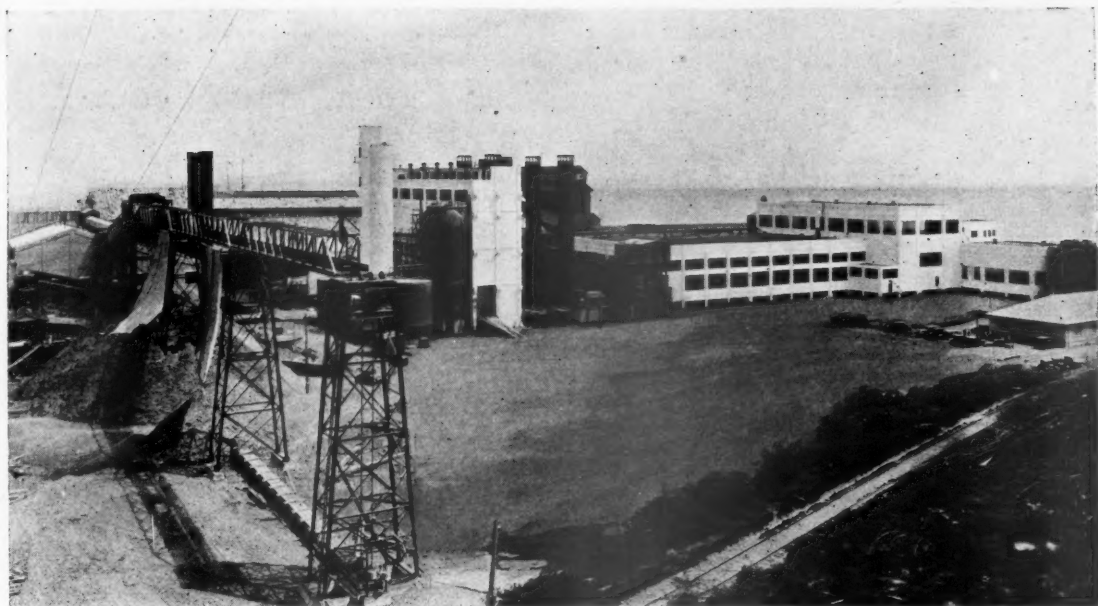


Figure 3—Cross section of the Minton ingoing seal.



*New 170-ton Bleached Sulphite Pulp Mill of the Olympic Forest Products Co.,
Port Angeles, Wash.*

The Olympic Forest Product Company's New Bleached Sulphite Mill Is Thoroughly Modern

The Olympic Forest Products Company have, through their choice of a Minton Vacuum Dryer demonstrated their keen foresight in recognizing the quality advantages of low temperature drying of pulp in the absence of air.

A large material benefit is also derived from freight saving due to the low moisture content of the pulp as it leaves the Minton Vacuum Dryer.

The Olympic Forest Products Company's mill is thoroughly modern as evidenced by the positive technical control of their drying process through the use of the Minton Vacuum Dryer.



MINTON VACUUM DRYER CORPORATION
GREENWICH, CONNECTICUT

When writing to MINTON VACUUM DRYER CORP., please mention PACIFIC PULP AND PAPER INDUSTRY.

Built in 5 months — Erected in 35 days

A Fourdrinier Wet End and Minton Dryer for drying Sulphite Pulp at the Olympic Forest Products Company



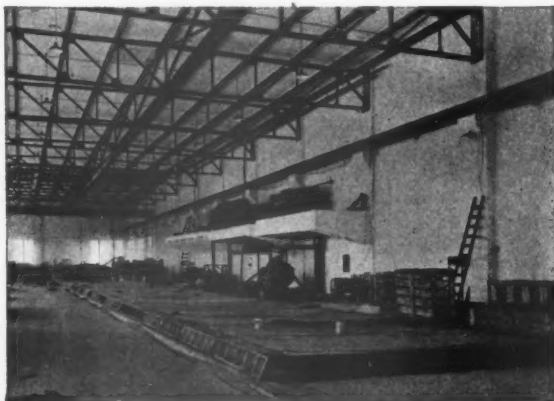
BUILT in Worcester, Massachusetts, in 5 months, and erected at Port Angeles, Washington, in 35 days, this modern machine stands as a remarkable record for speed in production and delivery.

It has a capacity of 175 tons of 106% air-dry pulp a day. It embodies the largest capacity Minton Dryer ever built, with forty 60-inch dryers, running in a vacuum of 28". The Rice-Barton Fourdrinier Wet

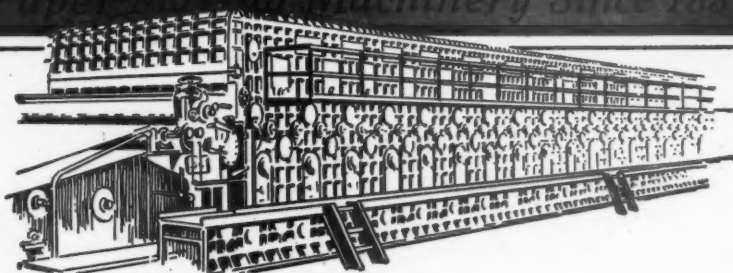
End has suction couch roll and three press rolls—one suction.

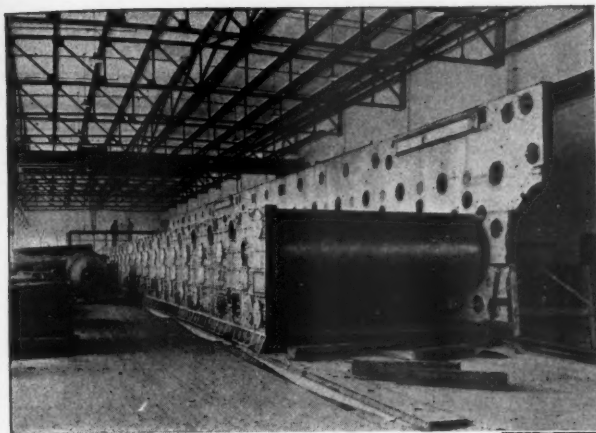
This is a large job, the entire shipment weighing nearly 1000 tons. Its success depended upon thorough planning and skillful manufacturing—two features in all Rice-Barton work, whether the job be large or small, 3000 miles away or close by.

May 5. Initial steps in assembly of Minton Dryer.

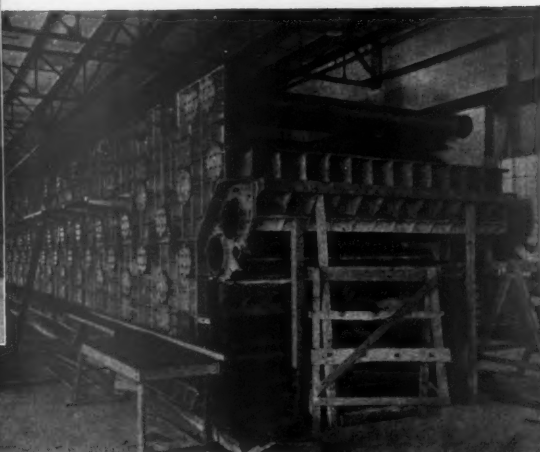


RICE, BARTON & FALES
Incorporated
WORCESTER, MASSACHUSETTS
Paper Making Machinery Since 1837

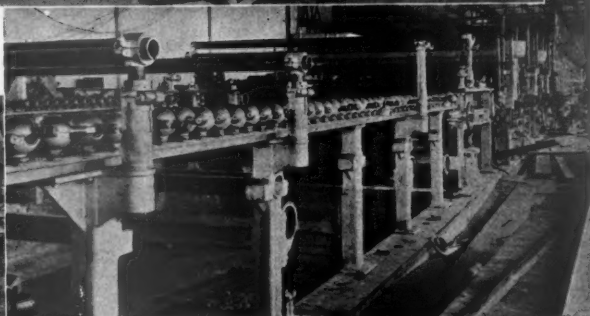




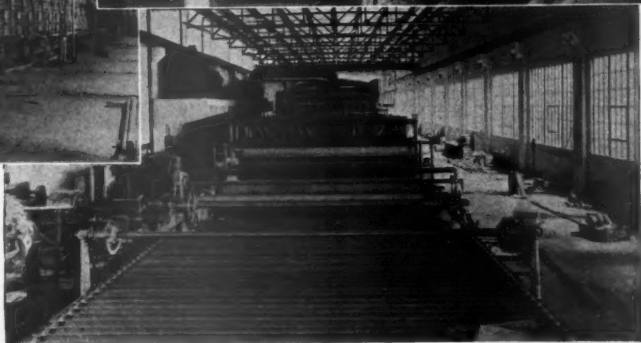
May 10. Photograph at the left shows progress 5 days later.



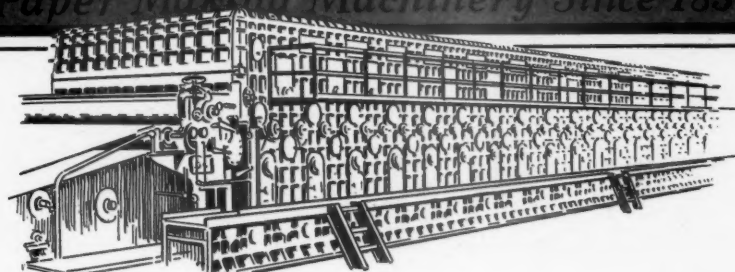
May 17. Two pictures at the right show further progress in assembly of Minton Dryer and Fourdrinier.

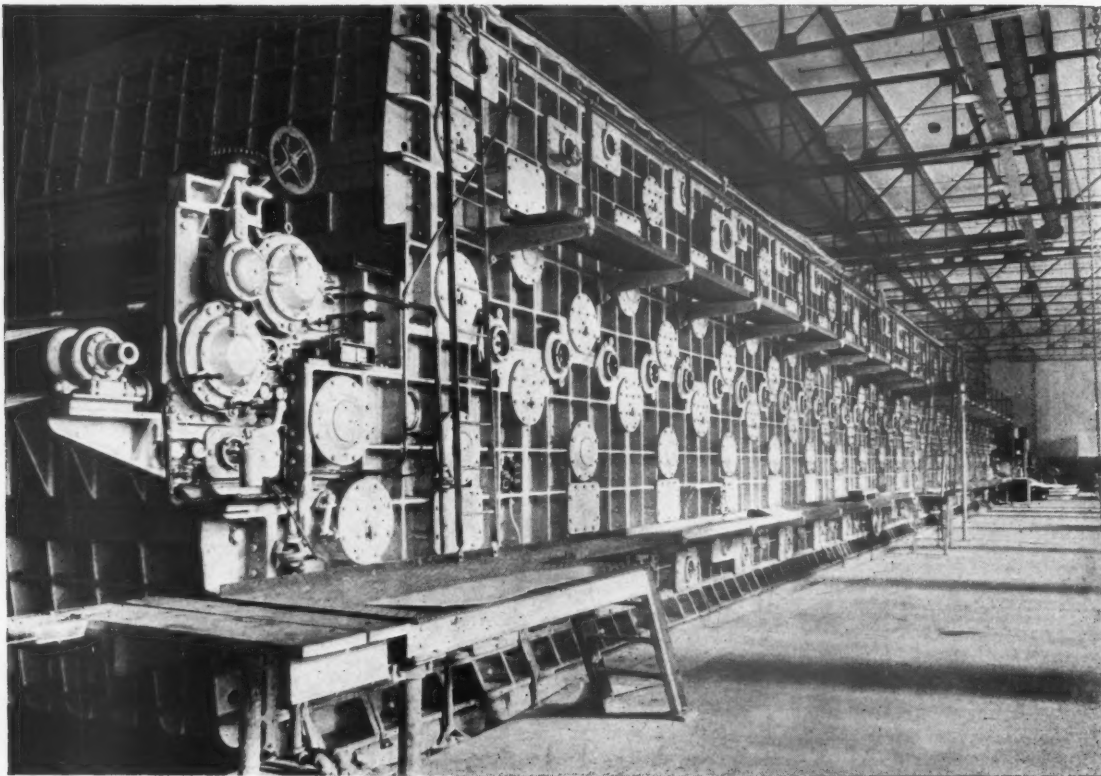


May 24. These views taken the following Saturday show the Minton Dryer and Fourdrinier practically completed.



RICE, BARTON & FALES
Incorporated
 WORCESTER, MASSACHUSETTS
Paper Making Machinery Since 1837





***For—Drier Pulp
Greater Strength
Savings in Freight
Savings in Steam***

The Olympic Forest Products Company selected a MINTON VACUUM DRYER

The above photograph shows the most recent installation of the Minton Vacuum Dryer. This machine contains 40 dryers—5 ft. diam. with a face of 152 in., and is designed to produce 175 tons per day of over 100% Air Dry bleached sulphite pulp.

The Minton Vacuum Dryer dries pulp in the absence of oxygen at a temperature of approximately 100° F., thus preventing the deterioration usually found at drying at comparatively high temperatures in the presence of air.

Vacuum-dried pulp reaches maximum strength at same beating time as wet pulp.

Vacuum-dried pulp has as high a Mullen test and a higher Tear test than wet pulp.

MINTON VACUUM DRYER CORPORATION

GREENWICH, CONNECTICUT

When writing to MINTON VACUUM DRYER CORP., please mention PACIFIC PULP AND PAPER INDUSTRY.

Drying Pulp in a Vacuum

(Continued from page 52)

Dryer is handled, together with the greatly improved working conditions in the machine room, have made the old time machine room crews staunch supporters of the vacuum dryer.

As indicated above, the cost of operation with the Minton Dryer has been demonstrated to be considerably less than with the older "open" machine. Steam is used with practically perfect efficiency to evaporate water from the sheet of paper or pulp. In many instances the steam requirement of the vacuum dryer for a given production is about 50% of that for an open dryer.

There is another saving in that the heat used to evaporate the water from the sheet is all present in the vapor under vacuum that passes from the dryer casing into the condenser. The condensing water absorbs this heat with a consequent rise in temperature (for example, 65 degree supply water can be heated to 90 degrees in the condenser) and this water is then available for use around the mill. Consequently, practically all of the heat supplied to the dryer finds its way back into useful channels. From the standpoint of power requirement, the vacuum dryer with its vacuum pump and condensate removal pump will usually be lower than a corresponding open machine.

Improved Product

While savings in operating costs and improvements in operating conditions secured thru the use of the vacuum dryer are of great importance to the mill owner and operator, the improvements in the product itself are even more interesting. The characteristics of the vacuum dryer that are particularly valuable for pulp drying are the low temperatures and the absence of oxygen during the drying process, and the complete control of drying conditions at all times. The advantages gained are briefly discussed below.

When pulp is dried on an open dryer there is a loss of strength somewhat proportional to the degree of drying. This has been repeatedly demonstrated with various kinds of pulp and is caused by the pulp so dried being subjected to high temperatures in the presence of air (mostly oxygen). The results of such tests are illustrated by a typical curve shown in Figure 4, the 100% value being the Mullen test of a sheet formed from pulp taken as the sheet came from the last press at the wet end. This depreciation in strength has been so serious that, in a number of instances, the pulp has been made into wet laps and shipped without any drying. There is then the very obvious disadvantage of greatly increased weight to be handled. Figure 5 illustrates this situation. Shipping pulp 40% air dry necessitates carrying 1.5 tons of excess water for every ton of air dry pulp. Where it has been necessary to ship the product any distance the extra cost involved has been almost prohibitive.

No Oxidation

Pulp has sometimes been shipped in a partially dried condition, compromising between the excessive loss in strength with complete drying and the excessive freight charges when wet laps were shipped. One objection to this procedure is that the pulp when partially dry deteriorates rather rapidly, probably due to an "air and water" effect. A comparison to illustrate this situation has been made to wooden piling driven into very wet ground or along water fronts; the part entirely under water and the part entirely above water deteriorates slowly, but the section in between that is neither saturated nor dry deteriorates rapidly unless special protective measures are used. The same effect is often

encountered with wet laps of pulp stored in piles, the outside edges moulding and deteriorating as the moisture leaves the exposed parts.

The Minton Vacuum Dryer has the advantage of drying at low temperatures and under conditions that prevent oxidation of the pulp fibres. The net result is that the only change in the sheet as it passes through the dryer is the loss of its moisture—the pulp fibres remain unchanged from their condition in the wet sheet. As contrasted with the deterioration which occurs when pulp is dried in an open or atmospheric dryer, this is a decided improvement and very naturally a considerable number of test runs have been made to establish the expected results.

Strength Tests

The data presented in Figure 6 is typical of the results obtained from such tests. Usually three rolls of wet pulp are made at the last press of the wet end of a machine. The first roll is not subjected to machine drying but taken into the laboratory and hand made sheets prepared from samples which have been subjected to beating for various lengths of time. These sheets are then tested for Mullen, tensile, tear and other qualities. The second roll of wet pulp is passed thru a vacuum dryer, duplicating as far as possible the conditions that would prevail in regular commercial operation. The third roll is dried in an open dryer. Sample sheets are then prepared in the laboratory from these two rolls of dried pulp after subjecting the material to beating for various lengths of time.

As shown by Figure 6, the vacuum dried pulp attains the strength of wet or slushed pulp after a short additional length of beating necessary to get the moisture back into the fibres. There is no depreciation in the maximum strength reached. On the other hand, the pulp dried in an open machine not only requires appreciably longer beating to reach a given strength but shows a very considerable reduction in maximum strength from that attained by the wet and the vacuum dried pulp. In the case of the pulp tested and reported on in Figure 6, at 60 minutes beating time the vacuum dried pulp attained a strength 96% of that shown by the wet pulp, while the atmospheric dried pulp had reached 87% of wet pulp strength. At 80 minutes beating time the vacuum dried pulp showed the same strength as the wet pulp and the atmospheric dried pulp was 88% of that strength.

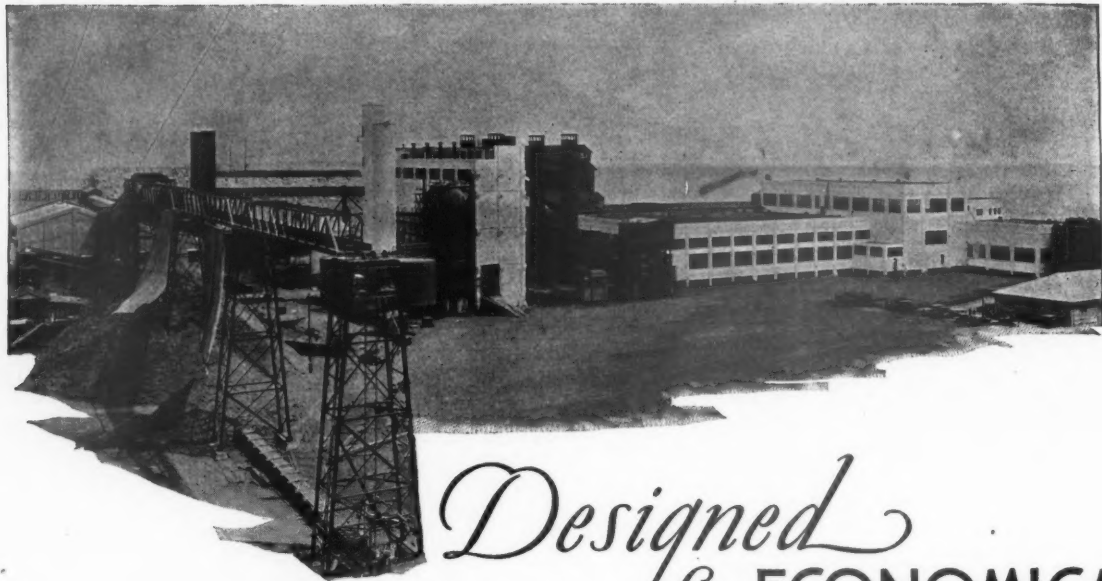
Freight Savings

Other tests for the determination of tear and tensile strength show the vacuum-dried pulp to be at least the equal in these respects of wet or slushed pulp, and better at all points than pulp dried in open dryers. This confirms the fact that the pulp fibres are not injured by vacuum drying.

The extent to which drying can be carried in a vacuum dryer without injury to the pulp has been established to be well above the 100% air dry (90% bone dry) point. Continuous operation at 104% to 106% air dry, or 94% to 96% bone dry, is entirely feasible commercially.

The extent to which vacuum drying of pulp can affect the marketing problem by reducing freight charges is illustrated in Figure 7. Assuming a freight rate of \$6.00 per ton and a 40% air dry condition at the last press of the wet end of a machine, the saving in freight per ton of air dry pulp is shown to be a substantial amount if the material is dried to approximately 100% air dry—about \$9.00 per ton. This is the saving made possible by the vacuum dryer in situations where pulp has been shipped in wet laps without

(Turn to page 59)



NEW 170 TON BLEACHED
SULPHITE PULP MILL OF
THE OLYMPIC FOREST
PRODUCTS CO.
PORT ANGELES,
WASHINGTON

Designed
for **ECONOMICAL
PRODUCTION**
**OF HIGH GRADE + + +
BLEACHED SULPHITE PULP**

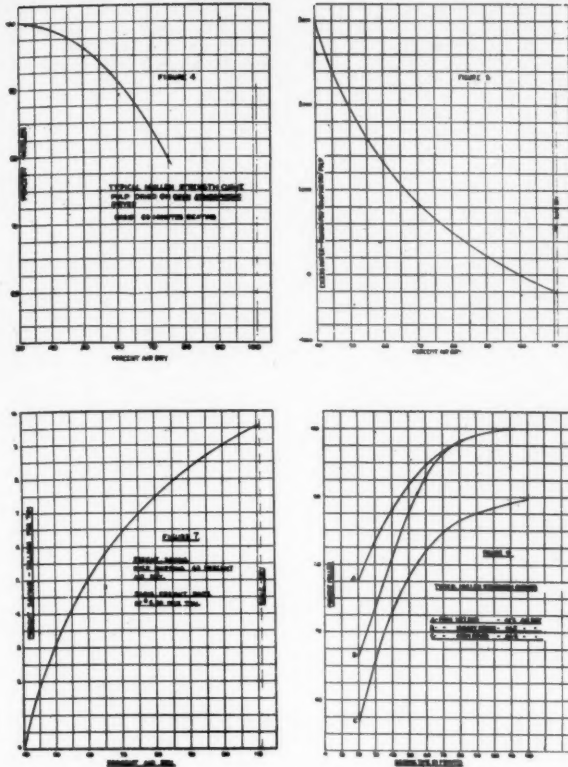
Economical production of both pulp and paper is obtained only by careful planning before construction of the mill is begun. The ultimate efficiency of the plant rests on the care taken in co-ordinating operating experience with the most modern engineering practice.

Conditions of pulp manufacture on the Pacific Coast, involving woods and other factors peculiar to the region, demand an acquaintance with those conditions if the greatest efficiency in design is to be achieved.

== O. C. SCHOENWERK ==

CONSULTING ENGINEER

1436 SCOTT AVENUE
WINNETKA, ÷ ÷
÷ ÷ ÷ ILLINOIS



Figures 4, 5, 6 and 7—Curves illustrating strength comparisons and relation of moisture content to freight charges.

Drying Pulp in a Vacuum (Continued from page 57)

any machine drying. Correction for the exact freight rate prevailing in any instance can be made by direct proportion.

If the pulp had been partially dried to, say, 70% in open dryers before shipment, the saving by drying to 100% air dry in a vacuum dryer would be the difference between \$9.00 and \$6.50, or \$2.50 per ton. The improvement in strength would be about as indicated in Figure 4; the pulp dried on open dryers to 70% would have depreciated to about 84% of its strength as wet pulp and, since vacuum-dried pulp will show no such depreciation but remain the equivalent of wet pulp, the consequent gain by vacuum drying would be about 16% in strength. There would also be the improvement that the pulp vacuum-dried to 100% air dry would be easier to handle and not subject to deterioration in storage.

An interesting development in connection with vacuum-dried pulp is that the color is usually much higher. This is due to drying without oxidation. Surface dirt is also lower, probably because there is no flow of atmospheric air over the sheet during drying to bring in dust, etc.

A feature of the Minton Vacuum that is of particular importance when pulp is being dried for the chemical industries is the consistency of operation with this machine. Changes in atmospheric conditions, while they are known to cause considerable difficulty with the open atmospheric type of dryer, have no effect upon the operation of the vacuum dryer. Complete technical control of operation is easily possible.

The Machine

and its construction

IN the fabrication of the pulp drying machine at Port Angeles is an interesting tale of skilled workmanship and quick delivery. Late in October, 1929, the old established firm of Rice, Barton & Fales obtained the contract for building the Minton Vacuum Dryer complete with wet end and cutter and immediately set their shops at Worcester, Massachusetts, at work.

The middle of March 43 cars of machine parts, weighing in all a round 1,000 tons, rolled the few miles from the Rice, Barton & Fales shops to Boston's great harbor, there to be loaded directly aboard intercoastal vessels. The last ship sailed from Boston four days after the last casting left the shops, March 20, and about May 1 discharged cargo at the pulp mill's own dock at Port Angeles. The second week in June the machine was ready to make pulp.

The machine installed for the Olympic Forest Products Company is perhaps the most modern ever installed for pulp drying. Instead of the usual cylinder wet end, this machine is equipped with a fourdrinier having a wire 156 inches wide and 80 feet long. The breast roll, table rolls and all wire rolls are mounted in Timken bearings. The modern 30-inch diameter suction couch roll also has Timken bearings. The fourdrinier part further includes six oscillating suction boxes, modern deckle equipment with slices and deckle strap washers, a brass save-all under the wire.

Electric Drive

There are three main presses. The first bottom press roll is 28 inches in diameter, suction type, while the other bottom main press rolls are of the same diameter but rubber covered. Both top and bottom main press rolls and the press felt rolls are carried in Timken bearings. Press frames and press housings are substantially built to take care of heavy pressures. Press housings are box type with the operating mechanism enclosed, arranged so that the upper roll may be couched and lifted easily and quickly.

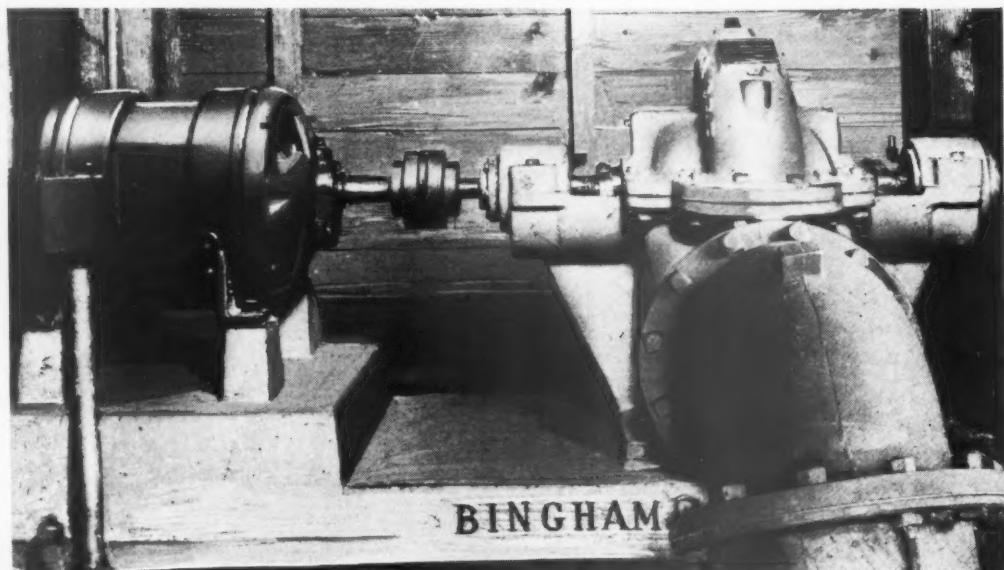
Altho the Minton Vacuum Dryer has the greatest capacity of any vacuum dryer yet built, the machine is capable of maintaining a vacuum of about 28 inches.

The drying section is driven by two Westinghouse electric sectionalized drive units operating thru Nuttall reducing gears, 30 h.p. constant speed motors being used on each unit.

On the wet end Westinghouse-Nuttall combinations of motors and reducing gears are used on the first, second and third presses. A Nash-Hytor vacuum pump, turned by a General Electric 100 h.p. motor, provides vacuum on the couch roll. A Jennings flat box pump driven by a 60 h.p. General Electric motor is used to exhaust the flat boxes.

The machine room has excellent natural light. The building is of reinforced concrete construction with steel truss roof overlaid with plank. Installation of the Minton Vacuum Dryer and the consequent closed control of all vapors attending the drying process eliminated the moisture problem in the machine room and makes it possible to dispense with a heating and ventilating system. A traveling crane spans the length of the room.

BINGHAM PUMPS



A BINGHAM PUMP INSTALLATION

*In the New Olympic Forest Products Company's Mill
AT PORT ANGELES, WASHINGTON*

BINGHAM PUMPS are designed and built to give efficient and uninterrupted service when operating under the severe conditions in pulp and paper mills. Each installation is carefully studied by our engineers before the pump is made and thoroughly checked after the equipment has been put into operation in order to insure obtaining the desired results.

BINGHAM PUMPS are being used extensively for all types of service in Pacific Coast pulp and paper mills. Recommendation by the management of these mills of our heavy duty stock pumps — acid and sulphate liquor pumps — white and fresh water pumps; and the service rendered by our organization is proving to be our greatest asset.

BINGHAM PUMP COMPANY

PORTLAND, OREGON

GENERAL OFFICE and FACTORY: EAST MAIN at SEVENTH
PAPER STOCK PUMPS — WHITE WATER PUMPS — ACID PUMPS — SULPHATE LIQUOR PUMPS

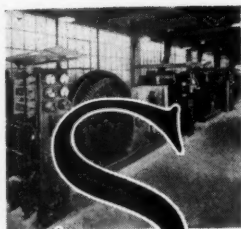
When writing BINGHAM PUMP Co., please mention PACIFIC PULP AND PAPER INDUSTRY

STEAM and POWER

installation at

OLYMPIC FOREST PRODUCTS COMPANY

*marks new era in
Combustion Efficiency*



STEAM and power generation at the Olympic Forest Products Company's new mill, in the matter of incorporating the most modern practice, has been given the same careful engineering attention that characterizes the pulp mill proper. Fundamentally, the aim of the company is to make the entire log pay its way thru the mill as lumber, pulpwood or fuel. Every bit

of refuse is concentrated for burning under the boilers. The plant is not only sufficient to supply the full power and steam demands of the company, but it houses as well a 5000 KW turbine to feed power to another mill.

In design the principle of the steam plant is to effect complete and efficient combustion of hogged fuel, generate high pressure steam, and skin off the power and divert the low pressure steam to process work. The plant is conspicuous for its small smokestacks and absence of a refuse burner, two exterior characteristics which attest the efficiency of the unit. Most of the Hemlock hogged fuel consumed under the boilers is supplied by the plant's own sawmill, but facilities are provided for supplementing this supply from outside sources if necessary.

The boiler plant consists of three Sterling type boilers, each having an effective heating surface of 14,140 square feet, 450-lb. pressure, equipped superheaters designed to superheat steam to a total temperature of 660° F. Hogged Hemlock waste, which is the principal fuel, is fired under the boilers both front and back. The Dutch ovens are of the flat grate type. These are divided into three separate furnaces on each side or a total of six to each boiler. Each furnace is approximately eight feet square. The total grate area per boiler is 385 square feet.

In the event of hogged fuel shortage the boilers have fuel oil burners which are fired at the sides.

Air preheaters of the plate type, each having approximately 13,000 square feet of heating surfaces are installed and the air for combustion is heated to about 450° F.

Two boilers operating at approximately 200% rating will carry the total load. During short intervals, however, the demand may be much higher and equipment has been provided to operate the plant at high rating. Four induced draft fans designed to operate in parallel have been installed. The number in use will depend upon the load. The forced draft fans are mounted separately, one for each boiler. The induced draft fans are driven by synchronous motors and the forced draft fans by induction motors.

Hogged fuel is delivered from the sawmill over the boiler house roof. Such fuel as is necessary for combustion is discharged to the boiler house conveyors and

the excess fuel is conveyed to an outside storage pile. When the sawmill is not operated fuel is returned from the storage piles.

In its use of water the steam plant has been designed to conserve heat values thruout the mill. Condensate from the machine room and from the surface condensers is returned to a de-aerating heater. The raw water make-up is first passed thru a heat exchanger used for continuous boiler blowdown, then thru a heater using the sawmill exhaust steam before passing to the heater. The feed water is further heated by use of a feed water heater using steam from the 150-lb. line, which is bled from the main steam turbine. The final feed water temperature is approximately 350° F.

Electric power is generated in two General Electric turbo-generator units. The turbines are 4000 KW, double extraction, and the generators 5000 KW, 2200 volts. Steam is delivered to the turbine at 420-lb. pressure and is extracted at 150 pounds for use in the sawmill and digesters, and also at 20 pounds for drying the pulp on the Minton vacuum dryer.

One turbine is sufficient to carry the load. The second turbine has been installed to supply power to the Washington Pulp & Paper Corporation's 300-ton news print mill during the low water season when the hydroelectric plants are unable to supply all the power necessary for full operation. A tie is therefore made by use of the Northwestern Power & Light Company's 66,000-volt lines.

Power Line Tie-In

Three 2000 KW, 2200/66,000-volt Westinghouse transformers are used to step up the power to the required voltage. This power hook-up ties in the Washington Pulp & Paper Corporation, the Northwestern Power & Light Company, the Fibreboard Products mill, and the Puget Sound Power & Light Company with the Olympic Forest Products plant. The hook-up enables each plant to feed power out or be served power as occasion demands.

All motors in the mill, 50 HP and up, are 2200 volts. Others are 440 volts. Two Allis-Chalmers transformers each with a 1250 KW capacity, 2200/440 volts, are used to step down the power for small motor service.

All switchboards in the power house and the distributing centers thruout the mill are of the cubicle type. The main switchboard is equipped with oil circuit breakers of high rupturing capacity that distributes the power to five major circuits. Later the power is metered and distributed to the various departments by use of a more competitive line of switching equipment.



Aerial view of the filter plant at the new bleached sulphite pulp mill of the Olympic Forest Products Company, Port Angeles, Washington

The filter plant shown above is the most complete and modern of its kind on the Pacific Coast. It is producing perfectly clear, colorless, sterile water 24 hours per day, and only one man per shift is required

for its operation. Over 750,000 gallons of filtered water is stored in the plant always available to the mill by gravity. The cost per unit of water delivered is surprisingly small.

CALIFORNIA FILTER COMPANY, Inc.

514 Fourth Avenue, SEATTLE, WASH.
SAN FRANCISCO LOS ANGELES

WATER



BUILDING a line to supply 40,000,000 gallons of water daily to the new Olympic Forest Products Company's pulp mill was a job in itself. In line with its fundamental policy of producing a bleached sulphite pulp of highest grade, the company recognized the imperative need of an ample supply of pure water and went to considerable pains to insure that

supply. After voting \$800,000 in bonds to finance the water line the City of Port Angeles awarded the line construction contract to the pulp mill company. Actual work was executed under the direction of W. B. McMillan, San Francisco engineer. The City of Port Angeles is guaranteed a return on its investment by a long-time contract made with the Olympic Forest Products Company and with the Washington Pulp & Paper Corporation and Fibreboard Products Inc., which latter two jointly contracted for 25,000,000 gallons daily.

From intake to pulp mill filter plant the water line is eight miles long. Tapping the snow waters of the Elwha River about two miles above its mouth and some 50 feet above sea level, the line delivers water at low pressure at the mill site. There a booster pump lifts the water to an extensive filter plant situated on a 100-foot bluff immediately in back of the pulp mill. The static head in the filter plant clear well is sufficient to maintain the required head on the mill service line. Booster pumps are used in the mill only for certain shower and pressure lines.

Water is delivered to the beach by a diverting canal, a 6-foot diameter wood stave pipe line, and two tunnels—the longer of which is 9000 feet in length. To that point the line has a daily capacity of 100,000,000 gallons. Continuing along the beach for two miles in 57-inch concrete pipe, the line delivers 65,000,000 gallons as far as the mills of the Washington Pulp & Paper Corporation and Fibreboard Products. A 48-inch line using both wood stave and concrete construction carries the water from this point thru the business section of Port Angeles to the new pulp mill.

Actual construction of the water line was completed in a few days less than a year.

The California Filters Company designed and executed the installation of equipment of the complete filter plant under the direction of the pulp mill engineers. The plant is the first complete concrete gravity filter plant installed for a Pacific Coast pulp or paper mill. It is almost entirely automatic in operation and has been designed to require minimum maintenance. The normal rated capacity is 20,000,000 gallons per 24-hour day.

On entering the plant water is delivered to mixing

\$800,000 pipe line and modern gravity filter plant handles all mill supply at Port Angeles

chambers for treatment with alum and hydrated lime from where, after 15 minutes of mixing, it flows into a settling basin to remain about an hour. It next passes thru the filters to be discharged into an 800,000-gallon reservoir located below the filters, from which point it flows by gravity to the mill. All fresh water used in the mill is filtered.

The filter plant has many interesting features. Its operation requires only one man per shift. Filter unit controls have labor-saving devices. In each of the two filter control houses is a marble top operating table for the control of the hydraulically operated gate valves on the outlet of the filters in the pipe gallery below. On each table is a loss of head gauge to indicate the condition of the filter and when same needs washing. Each filter unit is equipped with an automatic rate of flow control which can be set for any predetermined rate of delivery. Each filter unit, consisting of two halves 12 x 30 feet, has a normal capacity of 2,500,000 gallons per day. The filter boxes are cut transversely with reinforced wash water troughs fitted with adjustable weirs.

Filter beds are constructed in the usual manner. Specially selected filter sand is 30 inches deep and gravel is 22 inches deep. Filter bed design permits high velocity washing. Wash rate is about 15 gallons per minute.

Water level in the settling basin and mixing chambers is automatically controlled thru the depth of water in the settling basin, which in turn is controlled by the depth of water on the filters. Each filter unit is provided with an automatic shut-off so that when the reservoir below the filter fills up the filters automatically go out of service, backing the water up thru the filters into the settling basin and automatically closing the valve at the inlet.

Cement For High Pressure Boilers

Botfield's Adamant fire brick cement, mixed in the proper proportion with Adachrome Fines, was used for laying up the fire brick in the Olympic Forest Products boiler plant.

Adamant is a high temperature cement which comes in plastic (wet) form. Although Adamant alone is backed by its manufacturers as a very excellent bond for fire brick, in the Olympic Forest Products Company's boiler settings, because of the exceptionally severe conditions of service which were anticipated, Adamant was used as a binder for Adachrome Fines. The latter material is shipped in dry form, and is a carefully prepared chromite material, which is chemically neutral, very hard and dense in structure and possessing great refractoriness.

This mixture of Adamant-Adachrome Fines makes air-setting joints which, after being subject to heat, weld the brick together. These joints not only resist high temperatures, but also are impervious to the attack of the cutting and swirling action of air and gas which is set up in the burning of hogged fuel.

Pacific Coast Products

The plant of the Grays Harbor Pulp & Paper Company at Hoquiam, Washington, is manufacturing, under Hammermill supervision, the following standardized grades of paper:

**POSTING LEDGER
UNWATERMARKED
MIMEOGRAPH
RAILROAD MANILA**

and

**MANAGEMENT BOND
A HAMMERMILL PRODUCT**

**Watermarked
Fully Guaranteed
Uniform
Nationally Distributed**

For information and samples of any of these lines inquire of

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HOQUIAM, WASHINGTON**

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 Griley-Unkle Extractors
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 Griley-Unkle Roll Raisers
 Murphy Junk Removers
 Pasters
 Packing Boxes
 Rag Catchers for Beaters
 Shartle Stuff Pumps
 Multiple Fan Pumps
 Centrifugal Pumps
 Stuff Pump Balls
 Reels
 Rewinders
 Winders
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 Miami Wet Machines
 Quick Opening Valves
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 Couch Rolls

Run down this list. What is there on there that you need right now, or will need in the near future?

No time like now to replace worn equipment and get ready to "step fast" this fall and winter.

A jordan, perhaps, or a pump; maybe a couple valves or a bull dog filling! Whatever it is, drop us a line—or use the coupon because it is quicker. Complete information will be forthcoming by return mail and service will be whatever the situation requires.

SHARTLE BROTHERS MACHINE CO.

MIDDLETOWN, OHIO

DIVISION OF THE BLACK-CLAWSON CO. HAMILTON OHIO

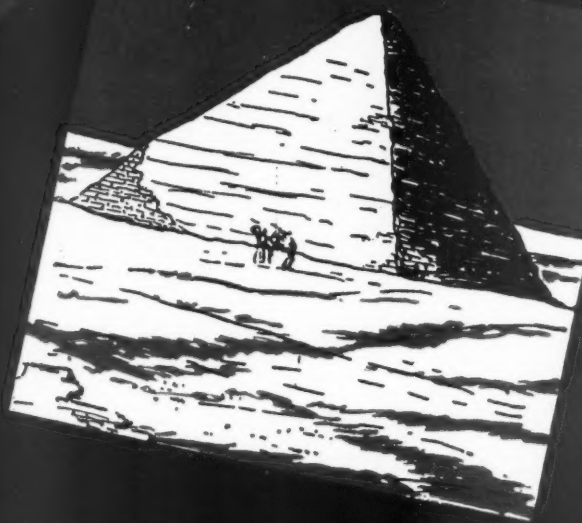
EXPORT OFFICE
15 PARK ROW
NEW YORK CITY

SHARTLE BROTHERS
Middletown, Ohio

We are interested in _____

Name of mill _____

Official _____



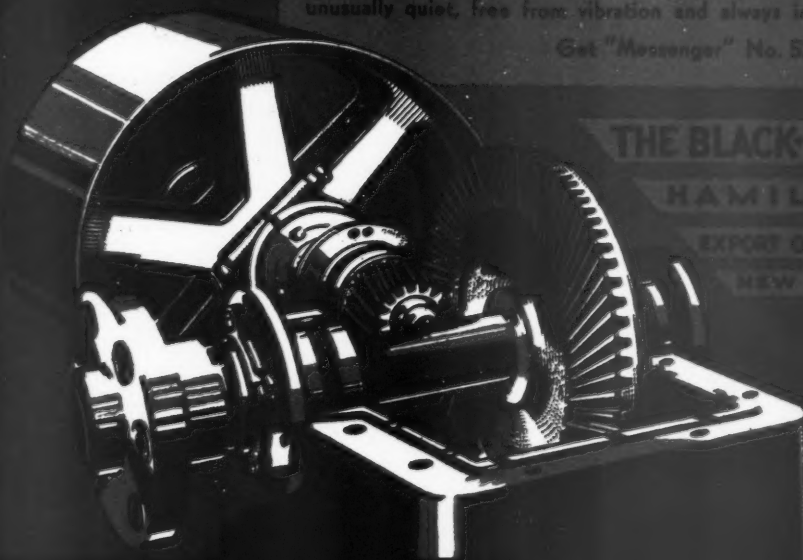
AS RUGGED AS THE ONE AND ALMOST AS SILENT AS THE OTHER

The next time you are in a mill equipped with Black-Clawson Spiral Bevel Gear Drives stop and examine one.

Note the heavy, double-shell, one-piece base—the spiral bevel gears of nickel steel or iron—the heat treated high carbon steel pinion and drive shafts. Take into consideration that all machine work is done in jigs and that all revolving parts, gears and pulleys are balanced on a special dynamic balancing machine.

Do that and you will understand clearly why this drive is extra rugged, unusually quiet, free from vibration and always in perfect alignment.

Get "Messenger" No. 52



THE BLACK-CLAWSON CO.

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EXPORT OFFICE 15 PARK ROW,

NEW YORK CITY, N. Y.

BLACK-CLAWSON SPIRAL BEVEL GEAR DRIVES



T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

Paper Trade Committees Chosen

President E. A. Doran, Pacific States Paper Trade Association, San Francisco, has appointed the following committees to serve for the year 1930-1931:

Program for 1931 Convention—L. A. Colton, Zellerbach Paper Co., San Francisco, chairman; C. A. Bell Portland; J. R. Coffman, Los Angeles; W. S. Gilbert, Spokane; J. Y. C. Kellogg, Seattle.

Cost of deliveries—E. A. Breymann, Zellerbach Paper Co., San Francisco, chairman; Victor E. Hecht, Zellerbach Paper Co., Los Angeles; W. R. McWaters, Zellerbach Paper Co., Portland; J. W. Thompson, Blake Moffitt & Towne, Seattle.

Uniform method of merchandising—F. C. Stratford, Zellerbach Paper Co., San Francisco, chairman, T. M. Denison, Blake, Moffitt & Towne, Los Angeles; W. Guthrie, Zellerbach Paper Co., Seattle; F. E. Jeffries, Tacoma Paper & Stationery Co., Tacoma; W. D. McWaters, Zellerbach Paper Co., Portland; D. M. Woodward, John W. Graham & Co., Spokane.

Skid Packing—W. B. Reynolds, General Paper Co., San Francisco, chairman; L. A. Colton, Zellerbach Paper Co., San Francisco; F. L. Lange, Blake Moffitt & Towne, San Francisco.

Simplification of printing and wrapping papers—H. L. Zellerbach, Zellerbach Paper Co., San Francisco, General chairman; T. M. Denison, Blake Moffitt & Towne, Los Angeles; W. Guthrie, Zellerbach Paper Co., Seattle; O. W. Mielke, Blake Moffitt & Towne, Portland; A. B. Rogers, Spokane Paper & Stationery Co., Spokane.

On this last committee the member appointed from each local association shall act as chairman of the local committee which he will appoint in his home city; the San Francisco chairman, H. L. Zellerbach to act as general chairman. This committee is to work with the division of simplified practice of the Department of Commerce.

The personnel of the Mills Relations Committee was announced in the July issue of PACIFIC PULP & Industry.

Zellerbach Buys Another Jobbing House

Zellerbach Paper Company, San Francisco, has purchased the Standard Paper Company, of that city. The Standard Paper Company was formed about nine years ago by two former employees of the Zellerbach Paper Company, Leo Goldenberg and David Morris. Mr. Goldenberg has been re-employed by the Zellerbach Paper Company.

A New Everett Broadside

Latest of the series of broadsides to be distributed to jobbers and ultimate consumers by Everett Pulp & Paper Company in a semi-modernistic piece featuring Everett m. f. book. The samples are taken from regular stock and printed in a commercial shop. Half tones are 120-line screen.

Enterprise Knows No Stagnation

When every one talks poor times and slow business and wears a face with chin bumping knees it is refreshing to find a bright spot and to learn that where enterprise is shown in stepping out of the production of the common run of products there is good business. If we condense the more sober analyses of the current "depression" we find that our present situation is not rated as slow, but simply less than the burst of excessive speed displayed in the earlier months of 1929.

The situation reminds of driving the nation's highways on a holiday afternoon. Unless our ragged nerves can have a clear road where we may put the gas pedal thru the floor boards and skin along at 60 we feel that life is in the doldrums. Yesterday we were satisfied with 45 per, the day before that with 25, and you don't have to have gray hair to remember when the sign at the village limits admonished that ten miles per was all the community papas would stand for. Today if some slow poke gets in our way ambling along really enjoying life at 40 or 45 we fret and fume and twist in and out behind the slow train thru Arkansas waiting for a bit of clear road where we can thunder past the damned old relic and pour out a grouchy look and a hatful of nasty words.

Comparing business with the 1929 era held up as the normal yardstick is like rating our old road bus by that one occasion when we let it out to 71 miles per hour on a long down grade with the wind on our tail. That wasn't normal, and neither was 1929.

Now here's a note from Edward N. Smith of Los Angeles who covers the Pacific Coast territory for the Tuttle Press Company, the Crystal Tissue Company, the Rhinelander Paper Company and the Western Advance Bag & Paper Company. His line is mostly specialties and he has found business not BAD, but actually good. There's a bit of cheer in what he says so we are going to quote:

"For many years I have preached to the paper merchants the necessity for a greater interest in the specialty field, and I find today that without exception the successful paper merchant is the one who is devoting more time and attention to the sale of merchandise which has a real value and profit to his trade rather than items of expense.

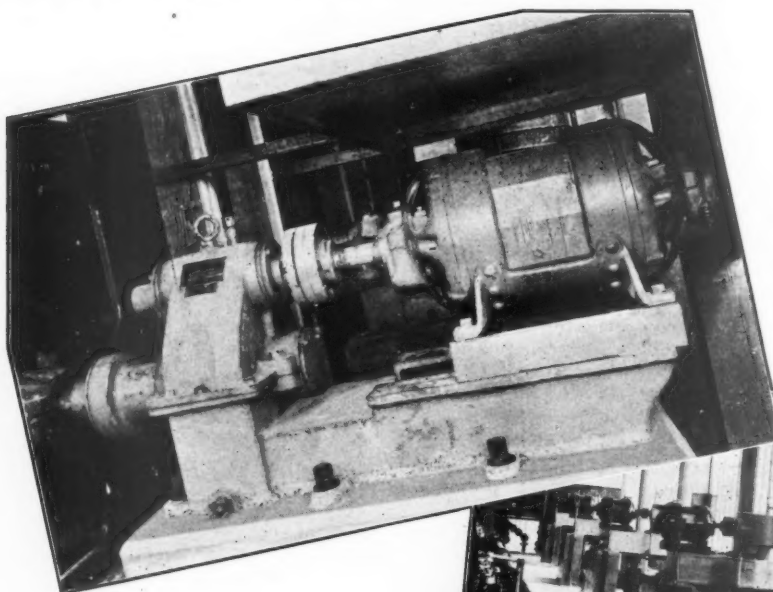
"There is and has been a constantly growing demand for items of this description, and the paper mills are awake to the fact that their success lies in the manufacture of unusual papers and conversion.

"Contrary to the accepted depression we find a very splendid increase in all of our lines, and I am very happy to say for the first six months of 1930 my business will show an increase of over 100% as compared with the corresponding period of 1929.

Milton Smith To San Francisco

Milton I. Smith, Blake, Moffitt & Towne representative at Santa Rosa has been transferred to the San Francisco office of the company, and Harold O. Bragonier appointed in his place.

Olympic Recognizes Western Quality



*in
Agitator
Type
Drives*

*—and Flat
Screen
Drives*



THE illustrations show two types of WESTERN Gear Speed Reducers in the new plants of the Olympic Forest Products Co. at Port Angeles. This progressive company has endorsed WESTERN REDUCERS by their application in practically all parts of the new mill. Performance records in plants of companies associated with Olympic were important in their decision.

Detailed information covering installation of WESTERN or PACIFIC for any type drive will be readily furnished on request.

*"Get Your Gears
from Gear
Specialists"*

Western Gear Works

SEATTLE, WASH.

Northwestern Division of . . . **PACIFIC GEAR & TOOL WORKS** Incorporated

SAN FRANCISCO PORTLAND



EL PASO

LOS ANGELES

WESTERN GEARS

+ PAPER CONVERTER +

A department for those who start where the paper machine leaves off
and who create new values for the paper industry thru remanufacturing

Western Business With Eastern Heads

The growing tendency to merge what have been independent Western institutions into nation-wide chains has not been without its effect upon other Western business enterprises catering to the wants of these organizations. Department stores have been affected notably in the mania to be one link in a chain rather than a unit in itself.

Invariably the headquarters of the chain is located in some Eastern city. The purchasing power moves East to headquarters and the local purchasing agent is merely an assembler of facts and a yes-man. The local personal element is removed and cold hard business reigns. In transferring all these prerogatives of individual initiative to an Eastern office the stores are sending out of town many of the dollars they had hoped to take in over their own counters, that is, they hope to sell in the West while buying only in the East.

The paper box business has been particularly hard hit by the merchandising merging mania. As pointed out, in response to an inquiry, by C. A. Morgan, manager of the folding box department of the F. C. Stettler Company of Portland:

"The many mergers which have been taking place in department stores and in other institutions, without a doubt, have an effect on the Pacific Coast paper box manufacturing in that the general purchasing offices are at an Eastern or distant point and the tendency of the general purchasing office is to buy at one point and ship into our territory. The general purchasing agent apparently does not understand the necessity of purchasing in the field which his store supplies but feels that by making his purchases in the East he is able to get better prices, never stopping to think that he is taking business away from a western manufacturer.

"For that reason it is up to all of the paper box manufacturers to endeavor to educate the distant purchasing agent along these lines. In some cases it may be necessary to put the matter up to the general manager."

Consolidated Passes Third Dividend

Consolidated Paper Box Company, San Francisco, passed its quarterly dividend of 25 cents on class "A" stock due in July. Two previous payments this year were also passed—last quarterly payment of 37½ cents on the "A" stock was made in November last year and no action has been taken subsequently.

Reorganization now is in process to place the company on an economical sound operating basis and decision of the directors to place the two classes of stock again on a dividend basis will depend on earnings during the remainder of 1930, according to R. J. Gruenberg, president.

Fibre Containers For Export Shipment

H. L. Stillwell, packaging engineer for Fibreboard Products Inc., has just returned to his San Francisco headquarters after an extensive European trip.

Immediately after the Pacific-European Steamship

Lines last February removed the penalty or upcharge of the extra 15 cents per 100 lbs. which has previously been charged when fibre cases were used for export shipments, Mr. Stillwell sailed for Europe.

He has visited England, Wales, Scotland, France, German, Sweden, Denmark, Holland, and Belgium where he has conducted a complete campaign of education and instruction as to the proper methods for discharging ships' cargoes and handling in subsequent traffic, fibreboard cases of canned goods and raisins. This work has had the cooperation of the principal steamship lines through their United Kingdom and European offices and is said to have been universally favorably received by all cargo and freight handling interests.

The economies of the fibreboard cases for export shipment, are of course, even greater than for domestic use. All wire tying and iron strapping is eliminated and the reduced tare weight is a considerable saving in ocean freight and other European handling charges. This is a real answer to the crying need for reduced distribution charges.

Canned pineapple from Hawaii, salmon from Alaska, fruits and vegetables from California, Oregon, and Washington are now being safely distributed abroad in fibreboard cases. One of the largest packers has adopted the fibreboard case for 100% of his export shipments to many European ports; several other packers have changed over to fibreboard on a number of items in their pack, and it is expected that their entire line will soon be shipped in fibreboard.

Westminster Mill Ships To Antipodes

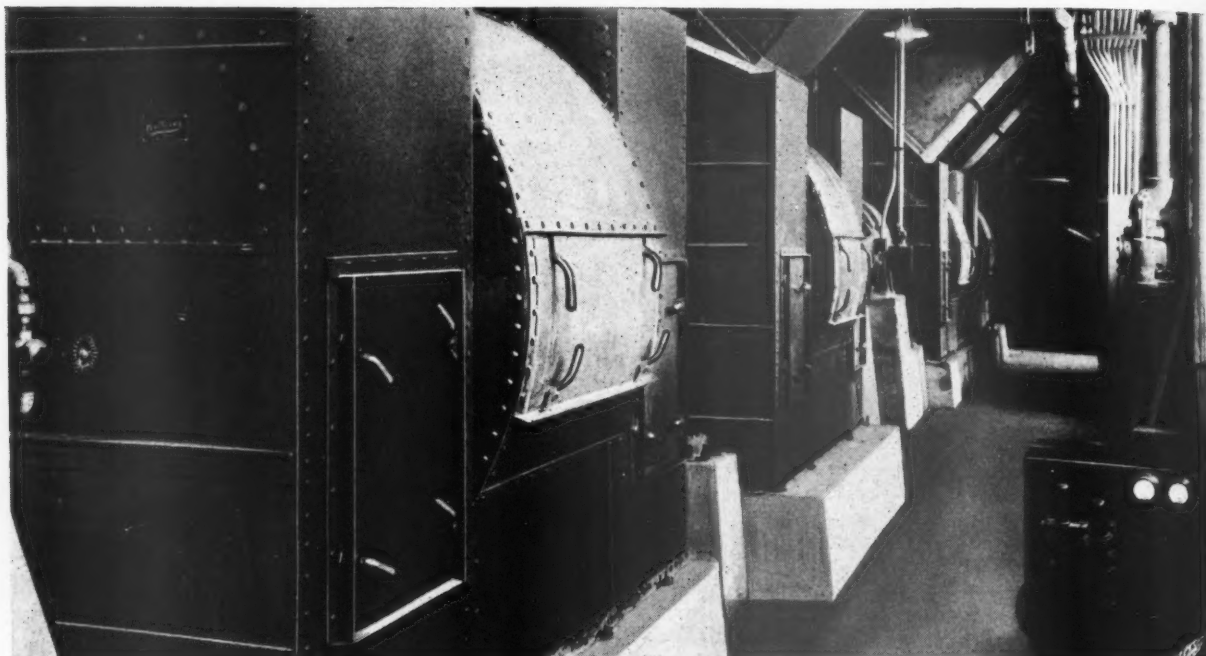
Now that the specialty paper mill of the Westminster Paper Mills at New Westminster, B. C., has been entirely rebuilt and put into operation since its disastrous fire a year ago, shipments have been resumed to the export market.

The mill enjoys a good business with Australia and adjacent territory. Recently a shipment left the paper mill on the liner Niagara to be distributed to customers in Australia, and also to Suva in the Fiji Islands. Paper napkins, paper towels and toilet tissues comprised the bulk of the shipment.

Pushing New Public Service Paper Towels

Under the direction of L. J. Arms, Western sales manager of the National Paper Products Sales Company, an aggressive sales campaign is being launched to increase the sales of the recently improved Public Service towels in industrial and public buildings.

The new towel is pure white pulp fibre with special qualities of softness, absorbency and strength. At the same time the towel has special features to facilitate dispensing. Production of the new towels is carried on at the Camas mill of the Crown-Willamette Paper Company, which recently underwent extensive remodeling.



Buffalo fans installed at Olympic Forest Products mill - - -

HEATING
 —
 VENTILATING
 —
 MECHANICAL
 DRAFT FANS
 —
 UNIT HEATERS
 —
 PREHEATERS
 —
 AIR WASHERS

Every one knows that the new mill of the Olympic Forest Products Company is the last word in modern paper mill design.

Wherever efficiency is the most important factor—you will find Buffalo fans. See them in operation when you visit this splendid new mill.

Buffalo Forge Company

185 Mortimer St., Buffalo, N. Y.

Seattle Office
303 Alaska Bldg.

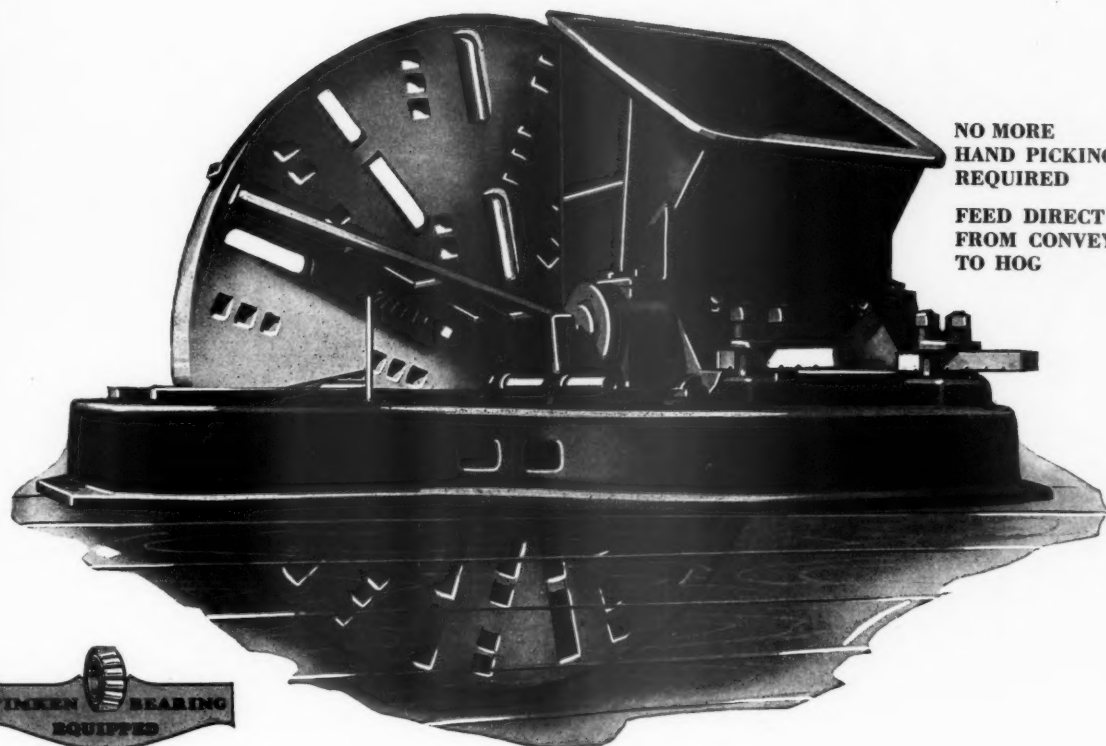
San Francisco Office
365 10th St.

Los Angeles Office
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When writing BUFFALO FORGE Co., please mention PACIFIC PULP AND PAPER INDUSTRY.

ESCO Huffman Hog

**Brings a New Conception of
Safety - Economy - Efficiency
in the Making of HOG FUEL**



**NO MORE
HAND PICKING
REQUIRED**

**FEED DIRECT
FROM CONVEYOR
TO HOG**



Representative Users:

OLYMPIC FOREST PRODUCTS CO.	Port Angeles, Wash.	2-72" machines
OLYMPIC FOREST PRODUCTS CO.	Port Angeles, Wash.	1-60" machine
MOHAWK LUMBER CO., LTD.	New Westminster, B. C.	1-48" machine
PORT ORFORD CEDAR PRODUCTS CO.	Marshfield, Oregon	1-48" machine
LONG-BELL LUMBER CO.	Longview, Wash.	3-91" machines
WEYERHAEUSER TIMBER CO.	Longview, Wash.	1-91" machine
WEYERHAEUSER TIMBER CO.	Klamath Falls, Oregon	1-91" machine
HOQUIAM LUMBER & SHINGLE CO.	Hoquiam, Wash.	1-60" machine
GRAYS HARBOR PULP & PAPER CO.	Hoquiam, Wash.	1-91" machine

Sizes 48" - 60" - 72" and 91"

Manufactured by

ELECTRIC STEEL FOUNDRY CO.

PORTLAND, OREGON, U. S. A.

Seattle, Washington, 2434 First Avenue South



**The Trade-Mark of
HIGH-QUALITY
EFFICIENT SERVICE
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in the manufacture
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PULP AND PAPER MILL MACHINERY

**FLAT SCREENS — CHIPPERS — BARKERS — DIGESTERS — STEAM ACCUMULATORS
BARKING DRUMS — ROTARY COARSE SCREENS — FUEL HOGS**

LOGGING MACHINERY

Geared Locomotives
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Riveted and Welded Tanks of every description
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We are agents for the following companies:

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WILLAMETTE IRON & STEEL WORKS

Portland, Oregon



*Battery of Leahy Screens in Chipping Plant of Olympic Forest Products Company,
Port Angeles, Washington*

NINE ^{THE} *Leahy* SCREENS give OLYMPIC FOREST PRODUCTS CLEAN, UNIFORM CHIPS

The CLEANLINESS and UNIFORMITY of wood chips coming from the LEAHY NO-BLIND screen is due to the sharp, quick vibration transmitted to the ENTIRE SURFACE OF THE SCREEN.

CONVEYCO
PRODUCTS

The principles of the LEAHY NO-BLIND Screen are protected fundamentally by Re-issue Patent No. 16,701, re-issued August 9, 1927.

The chips are naturally stratified according to their sizes, and the small bits of wood are screened freely without hindrance by the oversize chips.

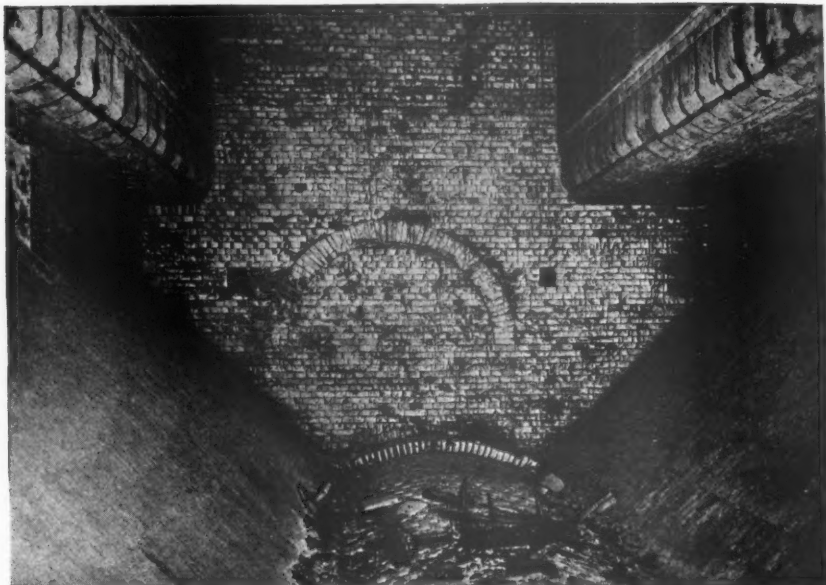
We can help you, too, secure cleaner, more uniform chips.

WEBSTER-BRINKLEY CO.

SEATTLE, WASHINGTON

Manufacturers and Engineers of Conveying, Screening, Elevating and Transmission Machinery

When writing WEBSTER BRINKLEY Co., please mention PACIFIC PULP AND PAPER INDUSTRY



Boiler Settings at Olympic Forest Products Company Are Laid Up With ADAMANT-ADACHROME *Fines*

IN the new bleached sulphite pulp mill of Olympic Forest Products Company at Port Angeles, Washington, ADAMANT Fire Brick Cement and ADACHROME *Fines* were used to lay up the fire brick in the settings under the three Babcock & Wilcox Sterling type water tube boilers. Approximately 90 tons of ADAMANT-ADACHROME *Fines* were used in this installation.

ADAMANT Fire Brick Cement is the original high temperature refractory cement. It is shipped in plastic form, ready-mixed and ready for use. Of itself, ADAMANT is the ideal bond for fire brick, but where service conditions are particularly severe, Mixtures of ADAMANT-ADACHROME *Fines* are used. ADACHROME *Fines* is a carefully prepared chromite material which is chemically neutral, hard and dense, and possesses exceptional refractoriness.

Mixtures of ADAMANT-ADACHROME *Fines* make strong, air-setting fire brick joints that are highly resistant to excessive temperatures, to the cutting and swirling action set up by hog fuel in combustion, to abrasion and other de-

structive elements encountered in Dutch ovens, boiler furnaces and refuse burners.

In leading plants of the Northwest, service has proved the superiority of

ADAMANT Fire Brick Cement, Mixtures of ADAMANT-ADACHROME *Fines* and other ADAPRODUCTS. Your refractories construction, too, will benefit through the use of ADAPRODUCTS. May our factory representative tell you why? Write us, or the distributor near you.



Every factory representative of ADAPRODUCTS is equipped with a Pyro Radiation Pyrometer, which gives instant, accurate reading of the temperatures in any or all parts of the furnace, thus eliminating guesswork in the recommendation of ADAPRODUCTS.

BOTFIELD REFRACTORIES CO.

World's Largest Exclusive Manufacturer of High Temperature Cements

Swanson and Clymer Streets
Philadelphia, Pennsylvania

ADAPRODUCTS DISTRIBUTORS:

B. C. EQUIPMENT CO., Ltd., Vancouver, B. C.
CONSOLIDATED SUPPLY CO., Spokane, Wash.
CRAGIN & CO., Seattle, Wash.
GENERAL POWER SUPPLY CO., Portland, Ore.
ROBERT M. HARTWELL CO., Inc., Los Angeles, Cal.
C. W. MARWEDEL CO., San Francisco, Cal.

A Few of the Prominent Pulp and Paper Mills using ADAMANT Fire Brick Cement and Other ADAPRODUCTS

Grays Harbor Pulp & Paper Co.
Hoquiam, Wash.
National Paper Products Co.
Port Townsend, Wash.
Pacific Mills, Ltd.
Ocean Falls, B. C.
Rainier Pulp & Paper Co.
Skelton, Wash.
Washington Pulp & Paper Corp.
Port Angeles, Wash.



ADAMANT

FIRE BRICK CEMENT

Other ADAPRODUCTS Include

ADACHROME Plastic Super-Cement ADACHROME *Fines* ADACHROME Aggregate
ADAPATCH (fire brick in plastic form) The ADAMANT Gun

Write for booklet



T-A-P-P-I

Pacific Coast Section

Chairman—R. S. WERTHEIMER
Longview Fibre Co., Longview, Washington

Vice Chairman—RALPH REID
St. Helens Pulp & Paper Co., St. Helens, Oregon

Secretary—H. K. BENSON
University of Washington, Seattle

National TAPPI Fall Meeting at Erie

The Technical Association of the Pulp and Paper Industry expects to hold one of the largest fall meetings in the history of the organization, on September 3, 4, and 5, 1930 with headquarters at the Lawrence Hotel, Erie, Pennsylvania.

There are few more accessible paper mill centers than the home of the Hammermill Paper Company. Erie is a great industrial center and at the same time it is a summer resort.

In its first meeting the local committee under the general chairmanship of Henry F. Obermanns, general superintendent of the Hammermill Paper Company, a charter member and former vice president of the TAPPI, has outlined an unusually well balanced program of subjects for discussion, plant visitations, recreation and get-togethers that will make it distinctly worthwhile for every mill executive, superintendent, engineer and chemist in the industry to attend.

Pacific Section Meets in Portland October 4

While the final program has not been whipped into shape it has been determined with fair certainty that the second annual Fall meeting of the Pacific Section of TAPPI, to be held in Portland, Saturday October 4, will take on the general complexion of a big round table discussion.

Instead of a formal series of papers each of the several Pacific Coast members of TAPPI's national committees will discuss for the benefit of the group the work of his particular committee and lead the discussion. The arrangement is expected to prove flexible and serve to permit a freer participation in the Fall session by all attending.

The name of the committee, the Pacific Coast members represented, and an outline of the committee work is set forth below:

Education—M. W. Black, Inland Empire Paper Company.—To provide means whereby students may obtain mill experience, to assist graduates in adjusting themselves to the requirements of the industry; to assist the industry in assimilating trained men and to assist in working out plans of vocational education for all employees.

Management Methods—Max Oberdorfer, St. Helens Pulp & Paper Co.—Production, costs and quality, operating efficiency, human relations, finance and sales.

Patents—C. W. Morden, Portland.—Procedure, legislation and decisions.

Heat and Power—D. E. Cousins, St. Regis Kraft Co.—Generation, distribution and application of heat and energy; study of fuel and lubricants.

Fibrous Materials—L. Friedman, University of Oregon.—Sources, storage, economic specifications of this class of raw materials, such as wood, rags, old papers, and straw.

Preparation of Materials—W. E. Breitenbach, Grays Harbor Pulp & Paper Co.—Preparation of all fibrous materials for pulping processes. This includes studies of barking, splitting, and chipping of wood, sorting of rags, papers.

Mechanical Pulping—E. P. Ketchum, Powell River Company, Ltd.—Physical methods of disintegrating wood and other fibrous materials; riffing, screening, washing, thickening, bleaching and other treatments prior to stuff preparation.

Alkaline Pulping—Ralph Reid, St. Helens Pulp & Paper Co. and R. S. Wertheimer, Longview Fibre Co.—Cooking liquors, digesting, riffing, screening, washing, thickening, bleaching, and other treatments prior to stuff preparation.

Acid Pulping—Sigurd Norman, Spaulding Pulp & Paper Co.—Essentially the same as alkaline pulping.

Paper Manufacture—B. T. McBain.—Operation of paper machines, and study of paper making factors.

TESTING COMMITTEES

Fibrous Raw Materials Testing—W. R. Benson, National Paper Products Co., and R. H. Scanlon, Powell River Company, Ltd.—Identification and other determination of pulping qualities.

Paper Testing—C. R. P. Cash.—Standards and control methods of determining the physical and chemical properties of paper.

Pulp Testing—H. K. Benson, University of Washington.—Standards and control methods of evaluating pulp.

B. W. Scribner, chief of the paper section, Bureau of Standards, is expected to attend and will perhaps be one of the feature speakers.

At this writing the convention committee is deciding upon Portland headquarters. The final program and all details of the Fall meeting will be presented in the September issue of PACIFIC PULP & PAPER INDUSTRY.

Harry W. Glenn, formerly beater engineer with the Northwest Paper Company, Cloquet, Minnesota, is now at Crown Willamette Paper Company's 300-ton reconditioned mill at Camas, Washington.

* * *

Edwin C. Jahn, who was recently the TAPPI American-Scandinavian Fellow at Holmens Bruks A/B in Hallstavik, Sweden, has returned to the United States and in August will take up new duties as professor of cellulose chemistry at the University of Idaho.

* * *

Dupuis Visits British Columbia

Dan E. Dupuis, general superintendent of the Hawley Pulp & Paper Company, Oregon City, Oregon, accompanied by his family, expected to return early this month from a two weeks' vacation in British Columbia.

* * *

Charles Frampton, general superintendent of the Columbia River Paper Mills, Vancouver, Washington, has returned to his desk, following a vacation spent in California.

* * *

Building World's Largest Log Barker

Fabrication of parts for the big Thorne barker to be installed at the Port Alice plant of the B. C. Pulp & Paper Company is now in progress at the Vancouver, B. C., plant of the Canadian Allis-Chalmers Company. The barker when completed will be able to handle logs 10 feet long with a diameter of up to 22 inches. Six cords of pulpwood will be handled per hour.

New Olympic Forest Products Mill

uses

FAST'S Couplings

WHY FAST'S? Because Fast's self-aligning shaft couplings mean continuous operation, without shut - downs for replacement of worn bushings, pins, springs, discs or grids.

Where there is hard, continuous work to do you will find Fast's couplings. That is why they were selected for the new, modern, bleached sulphite pulp mill of the Olympic Forest Products Company at Port Angeles, Wash.

See How FAST'S Coupling Works

The simple diagrams tell the story. A spur gear on each shaft end. A sleeve with internal gear teeth slipped over the two. Now when one shaft revolves, the sleeve turns, the other shaft turns and the error in alignment between machines is taken up between the lubricated gear teeth. Simple, isn't it?

Nothing to be flexed. Nothing to fatigue and fail. Nothing to be replaced. Nothing but a simple mechanical assembly which, if oiled like any other piece of transmission equipment, will last as long as the connected machines.

There is a Fast's coupling for practically every condition met in industry. Write to Baltimore and get the new 10th Anniversary bound catalog that tells the convincing story of why and how every new piece of equipment should be connected with Fast's Self-Aligning Couplings. It's free for the asking. No catalog file is complete without one.

Manufactured by

THE BARTLETT HAYWARD CO.

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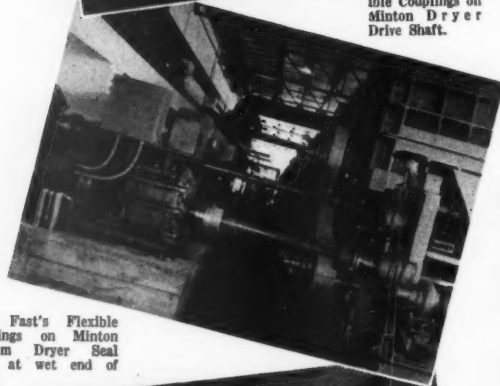
Grand Rapids, Mich.
Houston, Texas
Los Angeles, Calif.
Minneapolis, Minn.
Montreal, Canada
New York, N. Y.
Omaha, Neb.

Philadelphia, Pa.
Pittsburgh, Pa.
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Fast's Flexible Coupling on 1st Press Drive—Westinghouse Sectional Electric Drive with Nuttall Gears.



Two Fast's Flexible Couplings on Minton Vacuum Dryer Seal Rolls at wet end of dryer.



Two Fast's Flexible Couplings on Minton Dryer Drive Shaft.



Fast's Flexible Coupling on 3rd Sectional Drive.



FAST'S Self-Aligning COUPLING

**New Types
New Models
New Machines**

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

**New Dealers
New Branches
Appointments**

Variable Speed Turbine For Paper Machine Drive

A special governor gear applied to steam turbines, by means of which the speed of the latter can be held constant at any value over a range of 1 to 4, has been developed and placed in operation in a Midwest tissue mill by the De Laval Steam Turbine Company. The turbine supplies power to a paper machine producing tissue at 1200 feet per minute. On such production close accuracy is required.

The turbine is of the De Laval single velocity stage type, widely used for back pressure service where the exhaust steam is utilized in heating or processing. The usual speed controlling governor driven from the turbine shaft has, however, been replaced by a special variable speed governor, which is driven through a variable speed transmission from the slow speed shaft of the speed reducing gear. By adjusting the variable speed drive it is thus possible to set and hold the speed of the paper through the paper machine accurately at any value between 1,200 and 300 feet per minute, corresponding to 600 and 150 r.p.m. of the line shaft. The turbine is also equipped with a speed limit emergency trip, having a separate valve, as is standard on this type of turbine, for shutting off the steam supply in case of failure of the speed regulating governor.

The turbine is rated normally at 325 H.P. at 600 r.p.m. line shaft speed, which corresponds to 3,240 r.p.m. turbine rotor speed. Dry saturated steam is received at 145 pounds gauge, exhausted against 20 pounds back pressure. The unit has a continuous overload capacity of 375 H.P. with the steam pressure at 130 pounds gauge and with 30 pounds back pressure.

Link-Belt In New San Francisco Plant

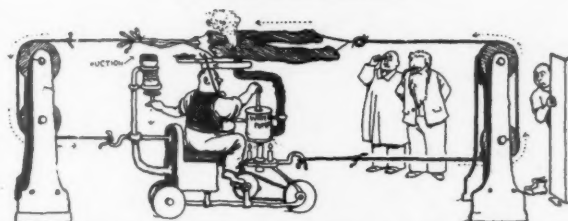
The Pacific division of the Link-Belt Company has moved from its old location at Nineteenth and Harrison to a new and modern plant at Paul Avenue and Bayshore Highway, San Francisco, where seven and one-half acres are available for office, warehouse and manufacturing building.

The new plant was not built as an expansion; it has been built to provide greater erection and aisle space and more room for storage of materials in process as well as for completed stocks; also to provide better working conditions for the employees. The layout and construction of the plant have been carefully planned to readily admit future expansion as the growth of business justifies.

At New Address

Fred C. Farrell, who formerly maintained offices at 736 Henry Building, Seattle, and warehoused his stocks at 1990 Railroad Avenue, has moved his office to the warehouse in order to render better service to his customers. Mr. Farrell represents the Blaw-Knox Company of Pittsburgh handling both forged and hammerwelded equipment and the Blaw-Knox Electro-Forged Steel Grating which is being widely employed by pulp and paper mills on the Pacific Coast.

Among Mr. Farrell's other accounts are the Laclede-Christy Clay Products Company of St. Louis, manufacturers of refractories and designers of the Laclede-Christy furnace arches, the W. H. Nichols Company of Wilkes-Barre, Pennsylvania, manufacturers of steam traps, the Griscom-Russell Company of New York, manufacturers of steam power plant equipment and the Rust Engineering Company of Pittsburgh, designers and builders of concrete stacks.



Paper making has seen some improvements in its day if we may judge by this interesting experiment with an early type of conditioner endeavoring to restore the nap on a well-worn surface — as seen by the artist, Heath Robinson, at Vickers Ltd., British representative of Bird Machine Company.

Featuring Tex-Rope Drives

Allis-Chalmers Manufacturing Company has issued a new folder featuring its Tex-Rope drives of which there are now 80,000 in service. This efficient short center, multiple V-belt was only offered to industry in 1925. A large number of installations have been made in pulp and paper mills of the Pacific Coast for a wide variety of drives.

Link-Belt Issues New Data Book

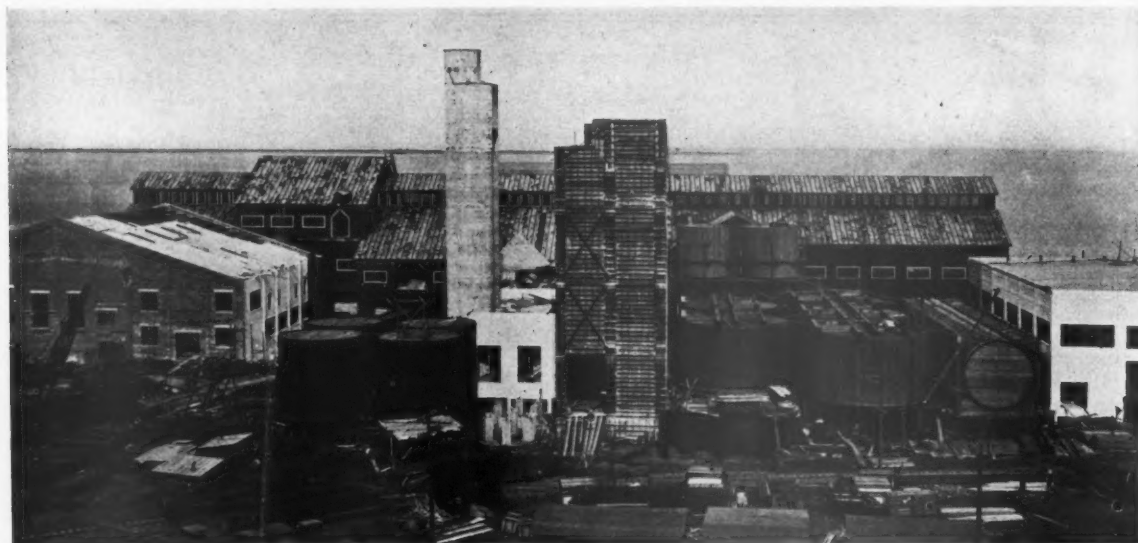
Link-Belt Company, 300 W. Pershing Rd., Chicago, has prepared a 176-page data book, No. 1615, on Belt Conveyors. This flexible covered book has been prepared to facilitate the selection and application of the proper type belt conveyor for handling any material in quantities desired. This book has been aptly called, "The New Testament of Conveying Methods".

Midwest Fulton Companies Merge

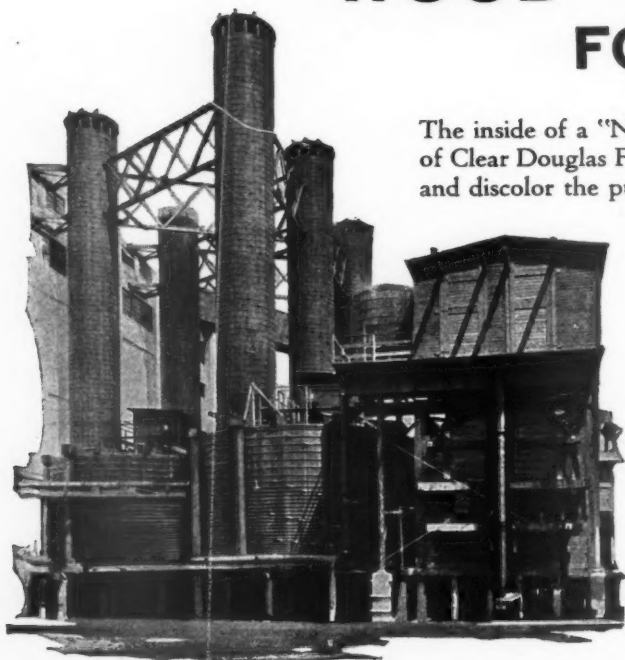
The Midwest Machine Company, of Dayton, Ohio, and The Fulton Engineering Company, Inc., of Middletown, Ohio, have merged under the name of the Midwest-Fulton Machine Company, with offices and plant at Dayton Ohio. Both companies are well known to the paper industry.

Emmons Sees Business Upturn

Francis A. Emmons, vice-president of Foote Bros. Gear and Machine Company recently returned from a business trip to the West Coast. Mr. Emmons during the trip contacted company representatives at Denver, Salt Lake City, Los Angeles, San Francisco, Portland and Seattle, and reports a general optimistic feeling for business outlook for the latter part of 1930.



The **NEW**
OLYMPIC MILL *Depends—*
on **NATIONAL QUALITY**
WOOD TANKS
FOR CLEAN PULP



The inside of a "National Quality" wood tank is a clean wall of Clear Douglas Fir which contains nothing that can scale off and discolor the pulp. This Clear Douglas Fir lumber has a natural tendency to resist the action of acids which makes it ideally suited for wood tank construction.

"National Quality" tanks for the pulp and paper industry are produced by workmen who have had many years' experience in this special phase of wood-working. We are prepared to furnish anything in the line of wood tanks or wood pipe required by the pulp and paper industry and we have a complete construction department for handling the installation of wood tanks and pipe.

NATIONAL TANK & PIPE CO.

KENTON STATION, PORTLAND, OREGON

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FIRST — LAST — ALWAYS

The best safety device known is a careful man

Pacific Coast Division
Pulp and Paper Section

NATIONAL SAFETY COUNCIL

ROBERT H. SCANLON
Regional Director
Powell River Co., Ltd.
Powell River, B. C.

The Dangerous Age of Safety

Editor's Note—The following discussion is contributed to the general cause of SAFETY by Robert H. Scanlon, assistant resident manager, and J. A. Lundie of the Powell River Company, Ltd.

Novelists and fiction writers define the "Dangerous Age" a period when a lusty urge to kick over life's traces prevails, when a spirit of recklessness manifests itself, when a temporary and perhaps a permanent destruction of life's even tenor is threatened.

This "Dangerous Age" threatens only in so far as its existence is ignored or neglected. Recognition of its existence and a mapping of life's course to meet the crisis usually diverts potential danger to channels harmless alike to individual and society. It is only when the dangerous age—be it the reckless urge of youth or the unrest of the late 40's—strikes an unprepared or an indolent society, that it becomes a real menace.

Industry and life resemble each other. Industry, too, has its "Dangerous Age," perilous and danger strewn if not recognized and controlled.

Recent investigation of SAFETY records show, generally, industrial accidents reach a peak between the ages of 20 and 30 years. Studies in our own plant tend to support this contention. Youth—more reckless, more restless, more irresponsible, less willing to masticate the bit of essential discipline than their elders—finds its name written high on the debit score card of shop disaster and industrial accidents. Above 30 the accident frequency shows a distinct and healthy decline.

"Taking a chance," the slogan of youth, is justified only when possible results may be achieved, when the venture brings fame or reward, or brings direct benefit to society or the individual. Weigh the daring of our Byrds, Seagraves and Lindbergs, against the real and lasting benefits achieved by them for humanity. Even a failure meant a worthy achievement.

No such results accrue from taking a chance with accidents. No fame, no reward. No one benefits, individually or collectively. Failure means a direct loss to individual, family, firm. Taking a chance in a modern industry is to gamble "heads I win, tails you lose."

Study of accidents in our plant which coincide generally with independent investigation elsewhere urges us to recommend Pacific Coast SAFETY officials to study and prepare for the "Dangerous Age of SAFETY". This is the time when inexperience, recklessness, and the urge to "take a chance" are prevalent. Over 30 the added responsibility of life—marriage, family, experience—automatically cut down our accident ratio. Eliminate the high accident frequency of the younger worker and we have made real and lasting progress on the road to industrial safety.

In conclusion, might I again suggest this may best be attained by cooperation—by the mills of the Pacific Coast making conscientious studies of accidents among their personnel and pooling their knowledge for the general good of the industry. This is what the member mills of the National Safety Council are doing in the East. Undoubtedly this close cooperation in SAFETY matters has a very important bearing on the excellent results they have achieved.

There is no reason why the West should lag behind in the prevention and reduction of accidents. A family compact for SAFETY among the Pacific Coast mills is, in my opinion, the foundation of the solution to the accident problem.

Accidents That Really Happened In Coast Mills

Some one turned on the power when a man was engaged in cleaning out machine stock chest. Agitators in the chest severely bumped the man around. Injuries—broken jaw, broken shoulder, and severe head lacerations.

* * *

Chipping plant employe fell 12 feet. Injuries—broken foot and sprained wrist.

* * *

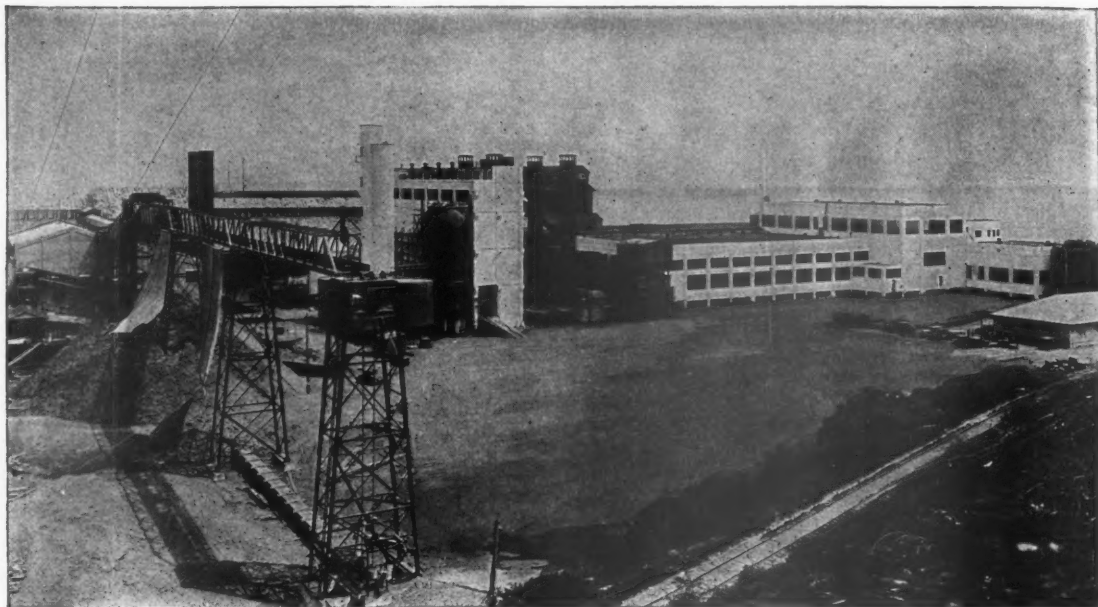
Elvin E. Rickard, 23, was killed on August 2, when he was caught between two rolls of paper on one of the paper machines in the plant of the Oregon Pulp & Paper Company, Salem, Oregon.

STATEMENT OF ACCIDENT EXPERIENCE—JUNE, 1930

Mills in State of Washington

COMPANY—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Everett Pulp & Paper Co.	83,576	0	0	0	0	1
Inland Empire Paper Co.	62,072	0	0	0	0	2
Fibreboard Products, Inc., Sumner	20,623	0	0	0	0	3
Washington Pulp & Paper Corp.	104,783	1	9.55	3	.029	4
Columbia River Paper Co.	48,412	1	20.7	4	.082	5
Grays Harbor Pulp & Paper Co.	79,202	2	25.3	42	.530	6
Rainier Pulp & Paper Co.	62,483	2	32.0	17	.272	7
Crown Willamette Paper Co., Camas	458,885	16	34.9	1,465	3.192	8
National Paper Prod. Co.	92,903	4	43.1	40	.431	9
St. Regis Kraft Co.	65,847	3	45.6	30	.456	10
Longview Fibre Co.	86,934	5	57.5	163	1.875	11
Shaffer Box Co.	14,478*	1	69.1	5	.345	12
Puget Sound Pulp & Timber Co., Bellingham Division	28,320	2	70.6	39	1.377	13
Puget Sound Pulp & Timber Co., Everett Division	105,876	9	85.0	75	.708	14
Pacific Straw Paper & Board Co.	20,104	2	99.5	7	.348	15
Fibreboard Products, Inc., Port Angeles	47,776	5	104.7	62	1.298	16
Puget Sound Pulp & Timber Co., Anacortes Division	24,200	3	124.0	98	4.050	17

The following mills not reporting: Cascade Paper Co., not in operation. Tumwater Paper Mills, not in operation. Pacific Coast Paper Mills. (Including 4,920 hours not reported in May.)



*Bleached Sulphite Pulp Mill of the Olympic Forest Products Company, Port Angeles, Wn.
CHRIS KUPPLER'S SONS, General Contractors*

CHRIS KUPPLER'S SONS SPECIALIZE in PULP AND PAPER MILL CONSTRUCTION

Contractors For—

OLYMPIC FOREST PRODUCTS CO.
Port Angeles, Wash.
WASHINGTON PULP & PAPER CO.
Port Angeles, Wash.
RAINIER PULP & PAPER COMPANY
Shelton, Wash.
GRAYS HARBOR PULP & PAPER CO.
Both Units—Hoquiam, Wash.
NATIONAL PAPER PRODUCTS CO.
Second Unit—Port Townsend, Wash.

TEN YEARS' EXPERIENCE, 1920-1930,
CONSTRUCTING MANY OF THE NORTH-
WEST'S FINEST MILLS QUALIFY THEM FOR
THE INDUSTRY'S MOST DIFFICULT BUILD-
ING JOBS—

CHRIS **KUPPLER'S** SONS

O. A. KUPPLER
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GENERAL BUILDING CONTRACTORS

Established 1889

General Offices: PORT ANGELES, WASH.

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When writing to CHRIS KUPPLER'S SONS, please mention PACIFIC PULP AND PAPER INDUSTRY.

Canadian Exports of Pulp and Paper June, 1930

Canada's exports of pulp and paper in June, according to a report issued by the Canadian Pulp and Paper Association were valued at \$14,863,723 which was a decline of \$1,861,358 from the previous month.

Wood-pulp exports for the month were valued at \$3,208,864 and exports of paper at \$11,654,859, as compared with \$3,288,475 and \$13,436,606 respectively in the previous month.

Shipments of the various grades of wood-pulp and paper for June 1930 and 1929 were as follows:

	June, 1930		June, 1929	
	Tons	Dollars	Tons	Dollars
PULP—				
Mechanical	12,867	367,839	19,996	563,056
Sulphite Bleached	19,726	1,490,402	23,818	1,773,602
Sulphite Unbleached	16,958	857,934	13,916	683,293
Sulphate	6,617	384,490	10,935	650,730
Screenings	2,136	41,219	3,822	62,196
All other	920	66,980	—	—
	59,224	3,208,864	72,487	3,732,877
PAPER—				
Newsprint	194,322	11,209,856	219,895	13,055,556
Wrapping	1,103	115,729	1,199	128,567
Book (cwts.)	3,667	36,189	4,070	44,157
Writing (cwts.)	924	7,275	51	1,249
All Other	—	285,810	—	326,450
		11,654,859		13,555,979

For the first six months of the current year, the exports of pulp and paper were valued at \$91,508,567 as compared with a total of \$97,199,980 in the first half of 1929, a decrease for this year of \$5,691,413.

Wood-pulp exports for the six months were valued at \$21,323,710 and exports of paper at \$70,184,857, as compared with \$21,470,505 and \$75,729,475 respectively in the first half of 1929.

Details for the various grades are as follows:

	Six Months, 1930		Six Months, 1929	
	Tons	Dollars	Tons	Dollars
PULP—				
Mechanical	91,484	2,681,195	93,253	2,531,483
Sulphite Bleached	135,996	10,094,863	131,313	10,008,525
Sulphite Unbleached	105,612	5,267,905	91,472	4,346,128
Sulphate	50,732	2,936,302	68,674	4,088,745
All other	14,261	343,445	16,711	295,624
	398,085	21,323,710	401,423	21,470,505
PAPER—				
Newsprint	1,167,604	67,307,963	1,210,301	72,619,227
Wrapping	7,499	787,325	7,715	835,123
Book (cwts.)	21,064	198,761	37,673	321,319
Writing (cwts.)	1,992	17,080	3,094	27,685
All other	—	1,873,728	—	1,926,121
		70,184,857		75,729,475

Pulpwood exports in the first half of 1930 amounted to 633,443 cords valued at \$6,166,167 as compared with 612,946 cords valued at \$5,942,623 exported in the first six months of 1929.

News Print Production—June, 1930

The News Print Service Bureau's Bulletin No. 150 shows production in Canada during June 1930 amounted to 213,634 tons and shipments to 212,670 tons. Production in the United States was 108,398 tons and shipments 106,883 tons, making a total United States and Canadian news print production of 322,032 tons and shipments of 319,553 tons. During June, 23,891 tons of news print were made in Newfoundland and 683 tons in Mexico, so that the total North American production for the month amounted to 346,606 tons.

The Canadian mills produced 27,400 tons less in the first six months of 1930 than in the first six months of 1929, which was a decrease of 2%. The United States output was 11,471 tons or 2% less than for the first six months of 1929. Production in Newfoundland was 17,224 tons or 14% more in the first six months of 1930 than in 1929 and in Mexico 1,265 tons less, making a total decrease of 22,913 tons.

During June the Canadian mills operated at 73.0% of rated capacity, United States mills at 79.9% and

Newfoundland mills at 103.8%. Stock of news print paper at Canadian mills totaled 45,229 tons at the end of June and at United States mills 29,507 tons, making a combined total of 74,736 tons which was equivalent to 4.4 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	United States	Newfoundland	Mexico	Total
1930—June	213,634	108,398	23,891	683	346,606
1929—Six Months	1,283,922	686,238	140,152	8,173	2,118,485
1928—Six Months	1,311,322	697,709	122,928	9,438	2,141,397
1927—Six Months	1,158,723	718,800	111,665	7,711	1,996,899
1926—Six Months	997,669	773,043	98,673	7,596	1,878,981
1925—Six Months	893,753	844,017	84,554	6,169	1,828,493
1924—Six Months	747,537	762,953	34,466	6,269	1,531,225
1923—Six Months	679,143	758,923	32,452	5,748	1,476,266
1922—Six Months	621,697	761,339	32,042	6,000	1,421,078

Japan's Wood Pulp Imports

In May, 1930, Japan imported chemical pulp (quantities stated in pounds) from the following countries: England 642,133; U. S. A. 1,458,933; Germany 664,933; Sweden 928,667; Norway 5,975,333; Canada 7,152,667; France 96,000; Philippines 2,400. This was a total of 16,921,066 pounds. The records show no importation of groundwood pulp.

Production and Sales of Paper—Japan

May, 1930

	Production Pounds	Sales Pounds
Printing Paper (Superior quality)	13,143,439	14,356,333
Printing Paper (Ordinary)	11,272,210	10,458,812
Writing Paper	2,783,001	2,461,980
Simili Paper	10,916,940	10,154,965
Art Paper	1,714,099	1,324,598
News Printing Paper	48,188,290	47,500,187
Sulphite Paper	3,381,599	3,434,981
Coloured Paper	1,277,912	1,307,659
Wrapping Paper	10,967,043	11,684,585
Chinese Paper	1,961,306	1,833,730
Board Paper	6,641,953	5,339,007
Sundries	5,529,183	5,546,378
	117,776,975	115,403,215

Japanese Visit Shelton Mill

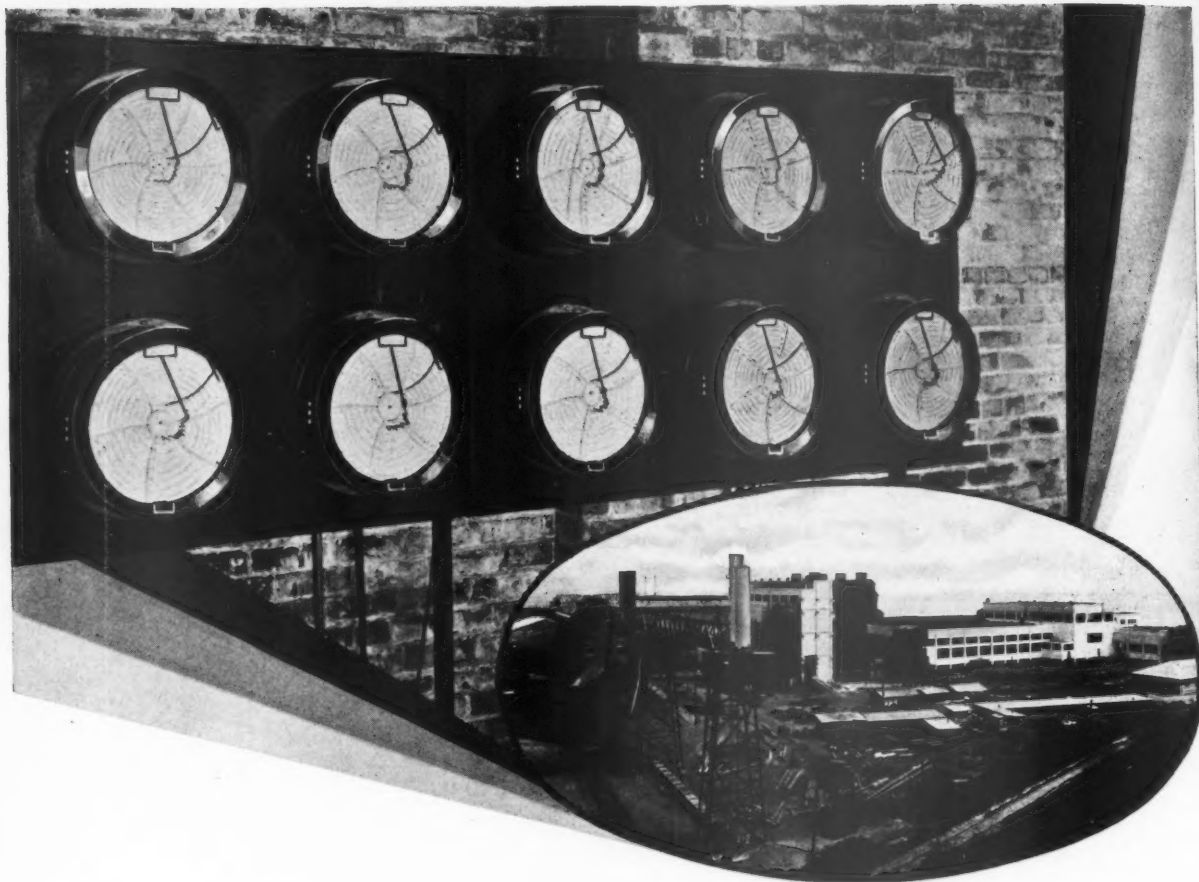
Manager D. B. Davies and officials at the Rainier Pulp & Paper Company's 175-ton sulphite mill in Shelton, Washington, in July entertained a party of distinguished Japanese industrialists who were on a tour around several of the larger pulp and sawmills of the district.

In the party were several prominent Seattle Japanese who were escorting Hikoyata Inasaki, son of the Baron Inasaki, and K. Okuno, head of the Mitsubishi Kaisha, one of the great steamship lines of Japan as well as interested in other large enterprises in that country. They were interested observers of the plant and operations, and the companies concerned are large buyers of pulp as well as lumber products.

To Overcome Sulphite Fume Problem

Because of some complaints of fumes created in the manufacturing process the Rainier Pulp & Paper Company at Shelton, Washington, has lengthened its vomit stacks on the blow pits to carry the odors higher. Condensing sprays are also being installed to minimize the features mainly causing the objections.

The Rainier plant has been carrying out a number of improvements recently. A greater amount of copper and bronze pipe is being installed and the building exteriors are being painted a brilliant white, greatly adding to the attractiveness of the mill as a whole.



Checking Steam Consumption and Costs at the new Olympic Mill

THE new sulphite pulp mill of the Olympic Forest Products Company — another stride in the migration of pulp production to the Northwest.

Brown Electric Flow Meters for this mill — another proof of the greater value of these flow meters to pulp and paper mill requirements. Greater value because—

1. The Inductance Bridge Principle adds to the flexible electric design an *inherent* indifference to voltage fluctuations.
2. The Automatic Recording Planimeter records volume flow units on the same chart with rate of flow record.
3. The Range-Changing Tubes make it easy, quick and *inexpensive* to change the flow meter range.

Get information for your service.

THE BROWN INSTRUMENT COMPANY
4467 Wayne Avenue, Philadelphia, Pa.
Branches in 20 principal cities

"To measure
is to economize"

Brown Electric Flow Meter

on the Inductance Bridge Principle

H. B. Shepard has been assigned to the Pacific Northwest Forest Experiment Station to make a study of forest insurance and has taken up residence in Portland. The Forest Service was authorized by the Clarke-McNary Act to make such a study but the money has only recently become available.

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, paper production in May showed a decrease of 2% under April 1930, and a decrease of 11% under May 1929. The total wood pulp production in May registered an increase of 1% over April 1930, and a decrease of 4% under May 1929.

All grades of paper, excepting bag and building papers, showed increases in inventory at the end of May 1930 as compared with the end of April 1930. As compared with May 1929, all grades, excepting wrapping and bag papers, registered increases in inventory.

Identical pulp mill reports for the five month period ending May 1930 indicated that 11% more mitscherlich sulphite pulp, 5% more bleached sulphite pulp and 2% more kraft pulp was consumed by reporting mills than for the same period of 1929. The total shipments to outside markets of all grades of pulp during the first five months of 1930 were 7% below the total for the same period of 1929.

News grade sulphite, kraft and soda pulps were the only grades that showed a decrease in inventory at the end of May as compared with the end of April 1930. As compared with May 1929 groundwood and soda pulps were the only grades whose inventory was lower than at the end of May 1930.

GRADE	Production Tons	Shipments Tons	Stocks on Hand— End of Month— Tons
Newsprint	118,093	114,702	27,924
Book (uncoated)	84,041	78,764	62,302
Paperboard	184,456	183,674	63,139
Wrapping	48,647	48,081	46,406
Bag	14,480	15,126	6,103
Writing, etc.	30,951	30,440	48,181
Tissue	11,434	10,677	10,616
Hanging	5,513	5,509	4,271
Building	6,221	5,375	4,343
Other Grades	21,993	22,102	17,777
Total—All Grades	525,829	515,650	291,062

GRADE	Production Tons	Used During Month—Tons	Shipped During Month—Tons	Stocks on Hand End of Month— Tons
Groundwood	105,581	88,353	1,242	95,937
Sulphite News Grade	36,171	34,117	2,320	8,356
Sulphite Bleached	26,369	24,838	1,488	3,486
Sulphite Easy Bleaching	3,226	2,924	204	1,147
Sulphite Mitscherlich	7,374	6,119	997	1,327
Kraft Pulp	31,379	26,155	5,978	8,178
Soda Pulp	25,024	15,866	9,277	3,588
Pulp—Other Grades	94		84	21
Total—All Grades	235,418	198,372	21,190	122,041

APRIL, 1930

Compiled by the U. S. Department of Commerce Bureau of Foreign and Domestic Commerce
(Figures Subject to Revision.)

[illegible]

WOOD PULP

	Mechanically Ground		Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		All Other Wood Pulp	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
COUNTRIES—												
Czechoslovakia			1,067	48,058	241	14,559						
Finland	1,180	31,692	7,526	368,511	405	26,915	2,090	92,565	207	12,719		
France											15	2,100
Germany			1,521	88,277	3,531	252,432			109	8,206		
Netherlands											49	3,928
Norway	200	5,657	2,333	135,353	3,609	234,398	1,638	76,558		11		
Poland and Danzig			25	1,068			866	36,845				
Sweden	429	11,081	9,633	513,548	3,941	255,788	6,664	329,228	100	8,307		
United Kingdom			39	733								
Yugoslavia and Albania			202	8,714								
Canada	16,614	423,770	14,816	719,780	15,295	1,152,053	5,887	373,096	408	35,382	495	33,010
Cuba				30								
Total	18,423	472,200	37,162	1,884,072	26,922	1,936,145	17,145	908,292	824	64,625	559	39,038

Total Pulp Imports, All Grades: April, 1930—101,035 Tons; \$5,304,372. March, 1930—115,438 Tons; \$6,130,661. Four months, 589,503 Tons; \$30,522,874.

Crown's New Cut-up Plant At Cathlamet

The new cut-up mill of the Crown Willamette Paper Company, located on the Columbia River about a mile and a half below Cathlamet, Washington, began regular operation in July.

The mill was somewhat delayed in beginning operations due to unexpected difficulties which delayed construction.

Whether or not the mill will operate on one shift or two is not known yet but will probably be determined soon. E. P. Stamm, superintendent in charge of local operations, was in Portland recently conferring with company officials regarding this matter.

Between 25 and 30 men will be employed on each shift when the mill is in full operation.

The new plant will serve to cut up logs into two-foot lengths of pulp wood for shipment by barge to the company's mills at Camas and elsewhere. Each length will be split in two, barked and cleaned by special equipment.

Harry Baxter, who has been in charge of construction work since it was begun in March, will also be connected with the new plant in operation.

Government Approves Camas Dike

The Federal government has approved the application of the Crown Willamette Paper Company to build a dike across Camas slough to provide a still water pond for log storage and other purposes at its 300-ton mill at Camas, Washington.

I. Zellerbach, president of the Crown Zellerbach Corporation made a northward trip from San Francisco headquarters last month to look over some of the organization's mills.

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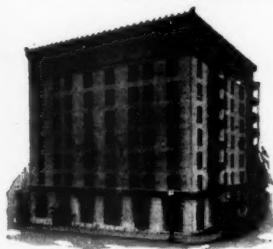
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Hawley New Mill Plans Delayed

W. P. Hawley, Sr., founder and former president of the Hawley Pulp & Paper Company, Oregon City, Oregon, was reported early this month to be recovering from a serious illness which had confined him to his home for several waays. Because of his illness plans for construction of a 150-ton bleached sulphite pulp and paper mill at Kalama, Washington, announced some months ago, were being held in abeyance, it was said.

Mr. Hawley, accompanied by his son, W. P. Hawley, Jr., was a San Francisco visitor in June, presumably in connection with development of plans for building the proposed mill, construction of which was scheduled to start during the present summer.

Eugene Paper Project Abandoned?

P. J. Lameraux, who has been identified with a movement looking to the establishment of a paper mill at Eugene, Oregon, left last month for his old home at Hudson Falls, New York, where he expected to dispose of personal property. Upon his return to the Pacific Coast in the early fall he will form a connection with a pulp and paper mill, the name of which was not made public.

It is reported that plans for the Eugene project have been virtually abandoned.

Pittock Leadbetter of the Columbia River Paper Company, Vancouver, Washington, has moved to his country home at Lake Camas, where he will spend the summer.

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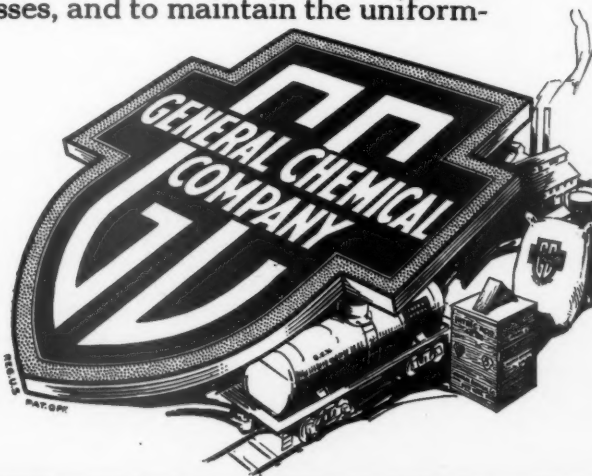
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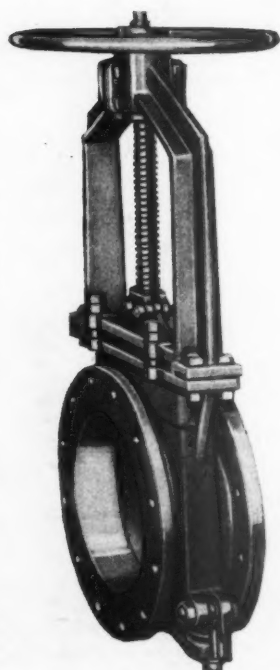
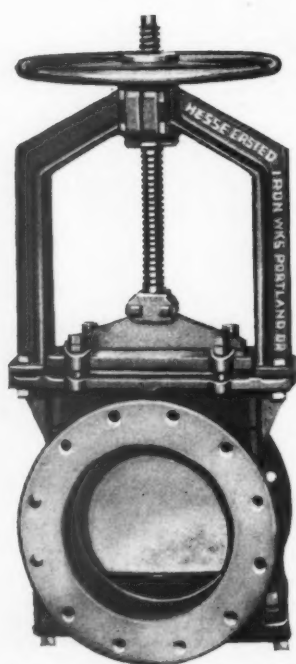
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